2

Hugh Cecil Earl of Lonsdale.

150 The Complete Farrier and British Sportsman, containing a systematic enquiry into the structure and animal economy of the Horse, the causes, symptoms, and most approved methods of prevention and cure for every disease to which he is liable: A Detection and Exposure of the erroneous and bad methods of Treatment generally adopted; with numerous approved and original recipes for various diseases. The whole rendered easy and familiar with a view to general utility, and founded on the latest Discoveries and experimental facts to which the progress of improvement for the last twenty years in the Veterinary Art has led. Including a faithful delineation of the various dogs used in the sports of the field, with canine pathology. Interspersed with sporting anecdotes, and an account of the most celebrated horses, dogs, etc. Equally important and interesting to the British Sportsman: as well as inn-keepers, coach-masters, farmers, owners of stage-waggons, etc. Embellished with a series of engravings, executed in the first style of the art, from original drawings in the possession of noblemen and gentlemen of the Turf, and copied by permission, exclusively for this Work. By **Richard Lawrence,** Veterinary Surgeon; and Author of "An Enquiry into the structure and animal economy of the Horse"; and of "Observations on the causes which constitute unsoundness in Horses." London. 1816.

4to. 512 pp. Vignette on title. Date at the conclusion of the Preface. 13 plates, 9 of which are of horses, viz.:—Baronet; Thorntoniarca, and the celebrated terrier, Vixen, of Thornton Castle, Yorkshire; Oscar; Benedict; Elephant; Dungannon; Sharke; Goldfinch; Flora; Hambletonian. M., 11¼ in. by 8¾ in.

Dedicated to the Noblemen and Gentlemen of the Quorn Hunt.

6.2.

1st edition

(150)

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BARONET

THE COMPLETE FARRIER, AND BRITISH SPORTSMAN,

By

RICHARD LAWRENCE ESQ.re

Thornton, and the Celebrated Terrier Vixen, of Thornton Castle, Yorkshire.

LONDON,

Published by Tho.s Kelly, 17, Paternoster Row.

1816

THE

COMPLETE FARRIER,

AND

BRITISH SPORTSMAN:

CONTAINING

A SYSTEMATIC ENQUIRY INTO THE STRUCTURE AND ANIMAL

Economy of the Horse,

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By RICHARD LAWRENCE,

VETERINARY SURGEON;

AND AUTHOR OF "AN ENQUIRY INTO THE STRUCTURE AND ANIMAL ECONOMY OF THE HORSE;" AND OF "OBSERVATIONS ON THE CAUSES WHICH CONSTITUTE UNSOUNDNESS IN HORSES."

London:

PRINTED FOR THOMAS KELLY, 17, PATERNOSTER-ROW.

BY W. CLOWES, NORTHUMBERLAND-COURT, STRAND.

TO THE

NOBLEMEN AND GENTLEMEN

OF THE

QUORN HUNT.

GENTLEMEN,

THE distinguished style in which the MEMBERS of the QUORN HUNT have long pursued the pleasures of the Chase, is so well known to the sporting world in general, as to require neither comment nor eulogium on the present occasion.

It was the manifestation of this superior excellence which convinced me, that, in seeking for Patrons to whom I should take the liberty of dedicating the following Treatise, I could not pay a higher compliment to my own judgment, nor excite a greater interest in the public mind in behalf of my Work, than to offer it to your consideration and protection.

At the same time I cannot but be aware that I am presenting myself before a tribunal of no ordinary character; but the candour

and urbanity of British Gentlemen will ever afford the best security against malevolent criticism or unqualified censure.

Treatises on the Veterinary Art have multiplied so greatly of late years, that the subject can admit but of little or no novelty. A Work, however, comprising in one view all that is most important on the Treatment of Horses appeared to me to be wanting. I have, therefore, in the prosecution of my object, attempted to adopt a general system, with the view of rendering it more familiar and less irksome to unprofessional readers. And, in order to relieve the dry detail of a scientific essay, I have occasionally introduced miscellaneous remarks and anecdotes relating to sporting affairs, deeming such a variety as the most likely means of making it more interesting, as well as a pleasant hour's relaxation, on the evening of a *hard day*.

With every sentiment of respect,

I have the honour to be

Your most obedient servant,

RICHARD LAWRENCE.

London,
Jan. 1, 1816.

TO THE READER.

In presenting a new work to the public it has generally been considered necessary to offer a few prefatory observations for the purpose of explaining the nature of its contents, as well as to solicit the indulgence of the reader in regard to its defects. In compliance, therefore, with such an established custom, the author of the present treatise ventures to claim the same privileges that have been granted to those who have preceded him, and the best pledge he can hold out for the validity of his pretensions will be the assurance that he has spared no pains in his endeavours to render it worthy of their attention and patronage.

In the prosecution of his object he has avoided, as much as possible, the use of technical terms, from the conviction that no essay on the subject in question can be really useful except it be treated in such a manner as to be perfectly familiar to readers in general. The diseases of the horse (notwithstanding some of them are incurable by any process hitherto discovered) are few and simple, and the affectation of using a high-flown and mysterious style of expression in describing their progress and effects is as ridiculous on the one hand, as the gross ignorance and vulgarity of the common farriers is disgusting on the other. It was the original object of the establishment of a veterinary college in this country to bring the practice of farriery to some settled system, built upon the foundation of good sense, and a close attention to the laws of nature.

It happens, however, unfortunately that there ever has existed in the public mind a greater or less propensity to become the dupes of imposition and quackery, and there never will be wanting individuals who are ready to seize every opportunity of enriching themselves by the credulity of the rest of mankind. To such an extent indeed has this evil been carried that no man need desire a better income than the value of those horses and cattle that are annually destroyed through the bad effects of publications, which, if they were written by regular veterinary surgeons, would be not only a disgrace to themselves but to the profession at large. The enormous increase in the number of horses employed in the service of the public, and especially by innkeepers and coach-proprietors, renders it highly essential to the interests of those persons that the best means of providing against the bad consequences of the extraordinary degree of labour to which they are exposed, should become generally diffused, as well as the best mode of preventing those diseases which too often arise from the neglect, or what is worse, from the obstinacy and self-conceit of their servants. The common treatment of this class of horses is but too generally founded on old and erroneous maxims, except in some few instances where the proprietor has the good

sense or rather the courage to judge for himself and to rescue his property from the hands of the blacksmith, who, amongst other notable expedients for the improvement of his own treasury, employs his Sunday mornings in bleeding the poor animals all round, whether old or young, healthy or diseased, that he may have the opportunity of charging one shilling per head. In consequence of this absurd and injurious practice, and the slovenly and unskilful manner in which it is generally executed, there are almost always to be found in the stables of innkeepers or coach-masters, one or more horses with diseased necks, which in nine cases out of ten ends in the loss of the vein, and it happens not unfrequently with those which work at night in the mail-coaches that the pin which closed the orifice in the skin is forced out by the bearing rein, and the animal bleeds till he drops down before the accident can be discovered by the driver.

The foregoing constitute but a small part of the evils to which horses of this description are liable, and of which a more ample exposition will be given in the body of the work, but the author conceives that even these would be sufficient to prove the necessity of a reformation in that department. In hunting and racing stables the poor animal is but too often doomed to endure the pernicious effects of systems that are at direct variance with the plain and self-evident dictates of nature. The absurdity of the system adopted in this higher branch of stable affairs, notwithstanding it is clothed with a certain affectation of superior skill and a knowing significance of deportment, is equally detrimental as that of the drunken and brutal blacksmith, and according to present appearances is quite as difficult to be eradicated or even counteracted. Nor are the baneful consequences of ignorance and prejudice confined to the horse alone, as may clearly be perceived in regard to the diseases of horned cattle and sheep. If it were possible to descend lower in the scale of human ability than that which belongs to the country-blacksmith, it must be in the qualifications of the cow-doctor. The monstrous and inconceivable mixture of folly and stupidity which directs the operations of these men is almost too ridiculous for belief, and in adverting to this circumstance the author thinks, without much presumption, that he is not likely to incur the imputation of envy or jealousy, or to be accused of attempting to pull down the fame of others to establish his own. The system to which he alludes is such as to defy all comparison, and so far from being capable of amelioration, it ought, in justice to common sense, to be abolished altogether, 'ere any attempts are made to establish a more rational mode of treatment.

In regard to the prescriptions which the author has recommended, his principal care has been to simplify them as much as possible, so as to avoid the consequences which must frequently take place when a numerous mixture of drugs is prescribed, namely, the counteraction of the properties of each other.

Nor has he been less attentive to the quantity, so as to prevent those fatal effects which often ensue from too large doses.

In his endeavours to accomplish the foregoing objects, the author has occasionally referred to such writers as have thrown any light on the subject, and he should regret losing the present opportunity of paying a just tribute to the sterling merit of some of his cotemporaries, especially to Mr. Bracy Clarke, whose labours have been constantly and so successfully directed to the promotion and improvement of the veterinary art.

THE COMPLETE FARRIER;

AND

BRITISH SPORTSMAN.

ON THE HORSE.

IN the year 1790, a few noblemen and gentlemen desirous of effecting a reformation in the art of Farriery established a Veterinary College in this country, under the management and direction of Mr. St. Bell, a native of Lyons in France.

The institution was considered to be of such national importance, that great numbers of persons resident in distant parts of the kingdom, although not likely to have the benefit of sending their horses when diseased, subscribed to it very readily.

Some of the principal medical and chirurgical lecturers on the human subject, most liberally and honourably contributed to its advancement by granting permission for a gratuitous attendance at their lectures to the young men who were entered as pupils to study the Veterinary art. Amongst the foremost of these medical patrons, were Mr. John Hunter, Dr. Baillie, Dr. George Fordyce, Mr. Cline, Mr. Ashley Cooper, and Mr. Abernethy.

These have been succeeded by others, who, much to their honour, still patronize the institution in the same laudable manner. In process of time several pupils who had gone through a regular course of study, and had obtained a proper certificate of their qualifications, settled themselves in various parts of the country, and in spite of the obstacles they experienced from the hostility of the old Farriers, succeeded in their endeavours to establish a proper estimate of the improved system which it was their business both to promulgate and to practice. Since that period a progressive advancement in Veterinary Knowledge has certainly taken place. Treatises have been published which have thrown much light upon the subject, particularly upon shoeing, and it is not unreasonable to expect that a still greater degree of improvement may eventually arise. But much must depend on the patronage and support of those gentlemen who take the lead in all matters relating to the turf or the field, and from this source it is that the question must ultimately be decided, whether the Veterinary Practitioner or the Groom is to take precedence in pretensions to Veterinary skill, and also whether the profession shall be invested with that importance and respectability to which it is fairly entitled, or whether it shall sink to its former state of ignorance and degradation.

That the profession has suffered from the incapacity and impropriety of conduct of some who have received diplomas from the college, as well as from the impositions prac-

tised upon the public by others who style themselves Veterinary Surgeons, but who never received any instruction from the college whatever, is unfortunately but too true. But these are evils to which other professions are also subject, and it would be unjust to expect more infallibility and perfection in the Veterinary department than in any other which is carried on by a great number of individuals. The greatest obstacle, however, to the prosperity of the Veterinary practice, is the almost universal influence of persons possessing no qualifications, in matters relating to the stable.

Their education from their first entrance into the stable is little else than a series of lying and tricking, and their first and principal object is to gain an ascendancy. In order to effect this, they have recourse to those means of *making every thing go wrong* with which their situation unfortunately so amply supplies them, until at length the master, tired out by constant and secret opposition, yields up his better judgment and submits to all the nonsense and imposition of his successful opponent. Hence it may be truly said that from the first moment the horse is domesticated the contest betwixt nature and the groom takes place.

The celebrated Earl of Pembroke, in a small Essay upon Shoeing, which he published several years ago, very justly remarks, that "whoever permits his groom to talk to him about shoeing or physicking his horses, will very shortly and very absurdly find himself on foot." The truth of this observation is manifested every day, as many proprietors of horses can, to their sorrow, testify. Nor are the bad consequences of this pretended skill confined to the hunting or racing stable. Even the waggon-team must partake of the blessings arising from this insatiable propensity to interfere with and to interrupt the course of Nature. Hence, the waggoner, not content with robbing his master's granary of corn to stuff his horses, has recourse to certain old nostrums to give a fine and sleek coat, amongst which it is not an uncommon practice to thrust a new-laid egg in the shell down the animal's throat. An instance of this kind occurred a few years ago in the county of Warwick, where an egg was lodged half way in a horse's throat, and the animal would have been choaked had not the waggoner confessed the fact, upon which declaration the practitioner who was present broke the shell by pressing the distended part of the gullet, and the animal was instantly relieved. A farmer in the same county, about three years since, lost four fine waggon-horses in consequence of their being subjected to these pernicious practices on the part of the waggoner, who, it appeared, had daily given them a considerable dose of box and mandrake with the view, as he said, of improving their condition. Such instances as these must be fully sufficient to point out the necessity of putting a stop to such silly schemes and idle notions respecting the animal œconomy. The changes which unavoidably take place in the animal's constitution from the artificial and unnatural custom of being kept in a stable, are quite adverse enough to his health without the addition of deleterious drugs administered according to the whim or the judgment of the ignorant person who has the charge of him.

The working ox fortunately escapes all these clever attempts at improvement. It is true he does not labour so hard in general as

the horse, but he is much worse fed, and when his day's work is over, he is turned into the straw-yard to take his chance. The result of this natural mode of treatment is that he never requires bleeding or medicine, as is so often the case with the pampered horse. His work, indeed, is so beneficial to his constitution, that he is supposed to be, at the expiration of his labour, more susceptible of becoming fat, and thereby of better answering the purposes both of the grazier and the butcher.

In succession to these preliminary observations, the first object which demands the attention of the reader, is a proper knowledge of the Structure of the Horse, for upon this point the comfort of those who employ the animal, either for business or for pleasure, very materially depends. It is a fact pretty well known to experienced horsemen, that there is not above one horse in fifty that is worth the expense of his keep.

They labour, it is true, but they perform the services required of them in such an imperfect manner, that all pleasure is lost to the rider from the constant apprehension of his danger.

Vigour of constitution certainly does not wholly depend on the external form of the animal, but it is a positive fact, notwithstanding some few occasional exceptions, that there is a certain shape and disposition of the body and limbs indispensably necessary to produce good and safe action. Dealers and others whose business it is to *sell* horses will tell a purchaser that "they will go in all forms," but, notwithstanding this doctrine may suit their own convenience at a particular moment, they know better than to trust to such an assertion themselves; for they will always give the preference to a good-shaped horse whenever they can find one.

Perfection, however, is but a comparative quality, and the happy state of ignorance of an unskilled proprietor of a horse may almost be envied, when he is seen riding with the utmost confidence and composure on the back of an animal whose every step threatens a speedy collision with his mother earth.

The motion of animal bodies is produced by the means of muscles acting upon bones in various directions. These are disposed in such a way as to suit the purpose for which the animal was intended. Hence a very perceptible difference of form exists between the pug-dog and the greyhound. Still they are both of the same species, and if a peculiarity of form were not essential to speed, the former would of course have been as fleet as the latter. This is sufficient to prove the necessity of a certain conformation to produce certain properties, and every man well skilled in horses, knows from experience, that there is a particular shape which gives good action combined with speed, although he is incapable of accounting for it on anatomical or mechanical principles. It is certain that the strength of an animal does not depend entirely on his bulk, and this is a very important point to be considered in regard to the waggon-horse, because it must be evident to the most common understanding, that if the weight of an animal body and the muscular strength which is to set it in motion be not in an equal proportion to each other, the size and weight must be an incumbrance instead of an advantage.

The thorough-bred or what is called the blood-horse, is indisputably the strongest animal *of his weight* known in the creation.

His strength therefore does not depend on his bulk but upon a certain form and disposition of his limbs, as may be readily perceived in nis full and close loin, low hips and muscular haunches and thighs; a shape very rarely met with in the great black waggon-horses which it has been so many years the fashion to breed in this country. Such indeed is the bulk and weight of these fleshy and unwieldy animals, that they appear, at a first view, to have been bred more for the butcher than for the waggon, and the mistaken notion, of strength depending upon size, has hitherto been and still continues to be the cause of such a comparatively useless breed being adhered to by farmers in general.

The annual consumption of the produce of the earth by horses in this country, is, when compared with its limited extent, enormous in the extreme, and it certainly is a matter of the first consequence that the greatest attention should be paid to the selection of the best breeds in regard to form and properties, with the view, if possible, of performing the same quantity of labour, with a considerable reduction in the number kept for that purpose.

But it generally happens that every farmer who possesses a mare, whether well or ill-shaped, is determined to breed from her under the idea that if she produces any thing in the form of a horse it will find a ready sale. Hence it occurs that the country is stocked with a race of animals fit for little else than to consume the produce of the earth.

The principal object to be attended to in breeding of horses is to attain strength without superfluous weight, and this maxim holds good in every respect, whether the horse is intended for the waggon, the coach, or the saddle

The true Arabian horse, which is the parent stock of all our blood breed, although he may appear to be slight to a superficial observer, is in reality the strongest horse in nature of the same size and weight. There is a peculiar elasticity of fibre in his composition, and a certain disposition of his limbs that give him a quality of strength which does not immediately meet the eye, but which is easily discovered on a trial.

In describing the proper shape of a horse, it will be necessary to begin with the

HEAD,

which should be small and lean in proportion to the body, and this is particularly essential on account of the neck being horizontal with the ground, and the head becoming thereby heavier than if it was supported in a perpendicular direction as in the human figure. The most beautiful character in the head is manifested when it describes a strait line from the top or vertical bone down to the nostril. This is peculiar to the Arabian horse. The forehead should be broad and flat, the eyes prominent, and the eye-lids elevated, lean, and flexible.

The ear should be placed rather backwards, which gives a greater boldness to the forehead.

The horse's ear, like the cow's, the deer, the sheep, the hare, and all other quadrupeds that save themselves from danger by flight, is moveable backwards and forwards, so as to catch sound in every direction, and it is remarkable that a horse, whilst sleeping, keeps his ears in constant motion, one of them be-

ing generally inclined forward and the other backwards at the same time.

To the credit of the present day, the foolish custom of cropping is nearly if not entirely exploded, and it is to be hoped that the equally absurd practice of trimming out the hair from the inside of the ears will eventually share the same fate. The branches of the lower jaw-bone should be open and expanded, so as to give room for the trachea or windpipe, and to facilitate the bringing in of the head close to the neck. This conformation is particularly necessary to carriage and military horses, which are generally required to carry their heads high and reined up.

The nostrils should be thin, large, open, and flexible, the mouth small, and the lips deep and pliable. Much of the good or bad manner of a horse's carrying his head depends on this last circumstance.

THE NECK

is a very important part as far as it relates to the carriage of the head, and also in regard to its influence on the action of the shoulders. Its lower extremity should issue high out of the chest, as the opposite form produces what is called an ewe neck, in which case the animal, when pulled by the bridle, constantly throws up his head with his nose strait out, so as to be prevented from seeing his road, a circumstance particularly dangerous in an impetuous or runaway horse. A thick neck is generally a sign of strength, and it is always much thicker in a stallion than in a gelding, hence it is customary with some breeders to let their colts be three years old before they are castrated, with a view to give them a fuller and more elevated crest. The neck being composed of seven distinct bones admits of being moved in various directions; it is also longer in grazing animals than in others, for the purpose of reaching the ground for their food. The shape of the neck, however, is much influenced by extraneous circumstances, and, in old coach-horses that have been accustomed to be reined up several hours in the day, it becomes so fixed and rigid, as to prevent them from reaching the ground with their mouths when turned to grass. The German breeders have a custom of feeding their colts out of high mangers, so as to oblige the animal to bend his neck in an arch-like form, and this practice being persisted in for a certain length of time gives the neck and forehead a more elevated and grander appearance.

THE SHOULDERS

are so essential to the purposes of the whole animal machine, that their conformation becomes a matter of the first importance. Their connection with the body is most admirably contrived both for support and motion, from being joined to the trunk by muscles only, and not by any joint as is the case with the hind quarters. The fore part of the body, therefore, is simply slung between the shoulders by means of muscles, the lower ends of which are fixed between the ribs, and the upper ends uniting in one mass are attached to the inside of the shoulder-blade. By this arrangement the shoulders possess a free motion both backwards and forwards, and they also escape in a considerable degree that percussion or shock which arises from the body being propelled forwards upon them, and which would have been much increased had they been attached to the trunk by a fixed joint. It is generally considered a good point

in a horse when the shoulder blades lie in an oblique direction towards the back, so as to permit the legs to stand well advanced before the body, and this position of the shoulders is thought to be indispensably necessary to speed. But it is doubtful whether this should be taken as an absolute rule, because the deer which is a swift animal has its shoulders upright and the fore legs much inclining under the body. It nevertheless is very essential to good and safe action, particularly in the road-horse. The blade-bones should not approach each other too closely at the top of the withers, so as to be narrow before the saddle.

Whenever this is the case there is a want of substance in the muscles and a consequent diminution both of strength and action. Eclipse, and several other celebrated horses, were what is called thick-shouldered, but still their blade-bones were oblique and not perpendicular.

The action of the shoulder may be much impeded by the pressure of the fore part of the saddle when it is placed too forward; hence the necessity of attending to that circumstance whenever the horse is saddled. The chest should be moderately broad and the muscles of the breast bold and prominent.

When the chest is too broad the horse goes with a rocking motion from side to side very unpleasantly to the rider; and, when it is too narrow, the fore-legs will be too close to each other and more liable to cut and bruise the fetlock-joint during progression. The back part of the chest which is called the brisket should be broad and full, so as to keep out the elbows in a strait line with the body. When the brisket is too narrow, the elbows always incline inwards and in that case it frequently happens that one fore-leg strikes the other on the inside of the knee, occasioning what is called the speedy cut, and which is very apt to throw a horse down when going fast in the trot. A narrow brisket also lets the girths of the saddle slip forwards, so as not only to alter the position of the saddle but to gall the skin of the elbows by their rubbing against that part. The fore-legs should be strait in every point of view, and approaching each other a little at the feet. The upper part, called the arm, should be broad, prominent, and muscular, to enable it to bend the leg with vigour and celerity. The knee should be well marked, broad and flat. The lower part of the leg, called the shank, should be broad and flat in a side view, particularly behind the knee—the tendons should be distinct from the bone, and feel firm and elastic to the touch. The fetlock-joint should be broad and bold, the pastern neither too upright nor too long. The oblique or sloping position of the pastern lessens the percussion or shock of the body during progression, and renders the horse's motion easier to the rider.

THE BODY

should be round and capacious. The back descending from the withers in a concave line nearly to the middle.

The loins broad, full, and strait, and the croupe gradually sloping in a slight degree towards the tail, which should issue high out of the croupe in an arch-like form. A thick dock, or root of the tail, is generally supposed to denote superior strength, and with some reason, because it proves that the back-bone must be large in the same proportion. The back-bone of the horse, as is the case

with all quadrupeds intended to carry burthens, possesses very little flexibility, but this want of flexion is compensated by the length of his neck, which enables him to reach his hind-quarters and thighs with his mouth whenever he chooses.

But the lion, and all the cat tribe as well as the dog, which have all short necks and which have occasion for much lateral motion or quick turning of their fore parts in catching their prey, have the power of bending their backs to a very great degree, but this faculty of course disqualifies for bearing burthens.

The last rib should approach very close to the hips. This closeness, however, (which is called being "ribbed home,") is not produced by any extension of the rib but by the greater advancement of the hip-bone, for, horses of this shape are always short in the back and long in the quarters. The body, or trunk, is merely passive, and is moved only by the quarters, hence, the shorter the body, the greater will be the size of the quarters and their proportionate strength.

The hips should be low and not too projecting, and although this form gives the animal an appearance of narrowness when compared with one that has high and prominent hips, yet there is an equal quantity of muscular substance, the difference consisting only in its being compressed into a more circular shape. The lower part of the haunches when viewed behind should project as widely as the hips. The thighs should be broad and muscular in a side view, and the large tendon terminating at the hock should be well detached from the bone.

The hocks should be at such a distance from each other as to place the leg or shank bone in a perfectly upright position. When they approach too closely they throw out the feet wider apart from each other, and render the attitude of the leg oblique, producing what is termed "cat hammed." Horses of this make frequently possess superior speed, but they are certainly weaker in that part, and their hocks are more liable to diseases, such as curbs, spavins, and thorough pins. This form is generally met with in fast trotters.

THE FOOT

may justly be considered as the most important part of the whole machine, for, upon its sound and healthy condition, the utility of the animal chiefly depends. From the universal frequency of its diseased state, it might almost be supposed that it was more defective in its original construction than any other part; but such a conclusion is not warranted by the evidence of Nature in any of her primordial arrangements. The fact is that the surface of the earth, which, in its original state is soft and yielding, is rendered hard and inelastic by the substitution of denser materials in the composition of artificial roads.

The constant and inordinate degree of labour which the cupidity of commerce and the calls of luxury have imposed upon the animal, is such as would consume the foot much more rapidly than it could grow or be reproduced, were it unprotected by the shoe. It is to these causes, therefore, that we should look for the source of nine-tenths of the lamenesses with which the horse is so often afflicted. For however skilfully the shoe may be formed and applied to the hoof, still the result of shoeing will ever be pernicious in

a greater or less degree, because the foot must be subjected to an unnatural restraint, counteracting the radical principles of its constitution and economy. The hoof of a colt, antecedently to its being shod, describes nearly a circular form, and is widest at the lateral parts or quarters. The utility of this shape must be self-evident, inasmuch as it increases the basis upon which the foot stands, and thereby gives greater stability to the animal during progression. The external parts of the hoof are usually divided into three, namely, the wall or crust (which is that part issuing from the pastern to the ground), the sole, and the frog. At its uppermost part, which is called the coronet, the hoof begins, either by a gradual change of the skin into horn, or by some peculiar vessels which produce that transformation. The coronet therefore is softer, more flexible, and more sensible than the lower part of the hoof, which increases in density and insensibility as it approaches nearer to the toe.

The horse's hoof may be said to be partially cleft, as the heels are divided from each other, the intermediate space being filled up by an elastic substance called the frog. From this arrangement the heels possess, in a small degree, the power of expansion and contraction, but which action is almost totally prevented by the confinement occasioned by the shoe.

The difference of shape between the foot of the horse and that of all other quadrupeds of the herbiverous tribe is well worthy the attention of the naturalist, as it very distinctly points out the purposes for which he was created. Hence, had the hoof been cloven throughout like that of the ox, the deer, the sheep, or the goat, he would not have been so well adapted for carrying burthens, nor for drawing heavy substances, as he is by its solid and circular form in front, which affords him a greater point of resistance than he could have obtained from the more flexible and yielding motion of the cleft hoof.

The sole is composed of the same horny material as the wall, but is somewhat more elastic. It would be partially worn away by friction against the ground, if the animal were unshod, but it would be re-produced by its own natural growth in the same manner as is the case with the wall. A moderate degree of friction and pressure against the earth is essential to its healthy state; hence, by being constantly elevated above the ground by the shoe it becomes more tender, and more susceptible of injury.

The surface of the sole, in its natural healthy state, is somewhat concave. This shape not only gives the foot a greater hold of the ground, but removes the principal part of the pressure arising from the weight of the body to the edges of the wall and to the frog. The sole, like the rest of the hoof, is constantly growing, but this perpetual increase would be kept down sufficiently by friction were the horse unshod and in a state of nature. But the sole being raised considerably above the ground by the shoe, no part of its surface is worn away; hence the superfluous part detaches itself in scales, which becoming dead and destitute of moisture, break off spontaneously. Horses whose feet are weak, generally have the sole flat, and sometimes even convex, by which the original plan of the hoof is completely sub-

verted both in regard to the proper points of support as well as to the firmness of its position on the ground.

The frog is a very important part of the hoof, inasmuch as it forms an elastic cushion for the protection of that part of the tendon of the leg which terminates and attaches itself to the inferior surface of the coffin-bone by a broad expansion of its fibres called, anatomically, the aponeurosis.

Its form is that of a wedge, and which is admirably adapted to give the foot stability by its resistance when indented in the earth. It has been supposed to be essential to the purpose of keeping the heels at a proper distance from each other, and thereby to prevent contraction; but this opinion does not appear to be well founded, because the frog is composed of a substance much softer than the heels, and consequently less capable of performing that office than if it were more dense in its texture.

It is very subject to disease when the horse is kept in the stable, and it is also frequently found in an imperfect state even amongst colts at grass. It is generally larger and halthier in flat feet than in those that are concave, and this arises from its being more exposed to pressure, by which means its healthy action is maintained, and any accumulation of superfluous moisture is prevented from taking place. The natural shape of the hoof is kept up solely by an equal growth in all its parts. Whenever this growth becomes irregular and unequal, an alteration of form necessarily ensues. Thus, when the wall is too strong, it overpowers the resistance of the sole, which in consequence is rendered more concave, and the heels are forced closer towards each other. But when the wall is too weak, the sole, in process of time, descends to the ground and becomes flat and sometimes convex. In this case the foot is more expanded at the bottom, but in proportion with that expansion, it will be more or less contracted above at the coronet. These changes in the shape of the hoof are brought on by slow degrees; and thus escape observation until they have proceeded to such an extent as to lay the foundation of permanent and incurable disease. It is certain that the chief cause of injury to the hoof arises from the stable, to which may be added the bad consequences of shoeing, even when executed in the most proper and judicious manner.

That these effects manifest themselves, more or less, in different subjects is doubtless true to a certain extent, but this may be in some measure attributed to an original difference of constitution.

Many ingenious theories have been published on the best means of obviating this inevitable evil, and a long list of hoof ointments have been recommended by regulars as well as quacks, all of which may serve to amuse the curious or to impose upon the credulous part of mankind, but which, upon trial will prove eventually to be but fallacious preventatives. There is a strange propensity in the human mind to ascribe every thing to some mysterious source, even though the origin of any particular circumstance stares them in the face as plain as the sun at noon-day. Hence it is that practitioners, in almost every profession, have found it not only convenient to administer to this propensity, but absolutely necessary, in order to obtain any credit for skill and experience from their employers. And so long as this

sacrifice of good sense and independence of mind is conducted on the mere principles of negative deception, and harmless acquiescence, it is not so deserving of censure or reproach, as when it is practised to the positive injury of mankind in the more important concerns of life.

It is a remarkable fact, and one well attested by all travellers, that there is no part of the world where so many lame horses are to be found as in Great Britain, and this too in a country where we boast of superior skill in shoeing and treatment of the foot. Whence can this inconsistency arise but from the constant attempts of art to turn us aside from the contemplation of nature. The original constituent parts of the horse's hoof, and the means by which it is nourished and supported, are precisely the same throughout every part of the habitable globe. The particular changes, therefore, which it undergoes in different countries are to be ascribed to adventitious circumstances, and not to any natural imperfection in the foot itself.

There is now scarcely a village throughout England that is not blessed or rather cursed with some very knowing practitioner in the art of shoeing, whose sign-board blazons forth to the public, "*Horses shod on improved and scientific principles,*" or, "*Horses shod on the principles of the Veterinary College,*" although the party himself has never seen a horse shod at that place in his life, nor if he had, would he in reality adopt it; his object in the declaration on his sign-board being rather to catch by its popularity than to promote any new system differing from his own profound ideas.

The only real distinction between the workmanship of one of these pretenders to superior skill and that of his less assuming brethren in the art, consists in giving a greater degree of finish in the construction of the shoe, and in cutting and rasping the hoof so as to adapt it more closely to the shape which he has been pleased to give it; and thus he fancies that the shape and appearance, which this cutting and rasping has produced, is the natural form of the hoof, and his unsuspecting employers, captivated by the great neatness evinced in this operation, are but too much inclined to believe that his pretensions are well founded.

The foregoing are to be considered as general observations only, a more particular detail on the practice of shoeing will be given in a distinct chapter appropriated to that purpose.

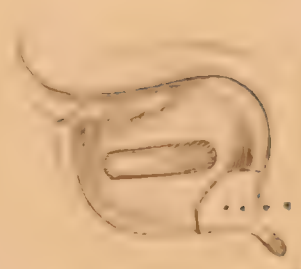
ON THE EYE.

One of the most important parts of the animal machine is the eye, and at a first view it appears extraordinary that no quadruped is so subject to blindness as the horse.

There certainly is a great and very perceptible difference in the original construction of the eye as well as in any other part, amongst different horses, and undoubtedly the predisposition to disease in that organ will be greater or less in proportion to the degree in which that difference exists. Still there must be other causes for such a prevalent infirmity, and the most evident and rational one is the artificial manner in which the animal is treated in his domesticated state. The eye of the horse is placed more on the side of the head than in front, and this position is common to all quadrupeds that save themselves from danger by flight It also enables him to kick at any object with

[illegible] of the Pupil

in a strong light.



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Extension of the Pupil

in an obscure light

Cataract

Specks in the Crystalline

[illegible] by W. Lewis St. John Square.

greater certainty of effect. The pupil is oblong, which is a form peculiar to all the grazing tribe, and which enables the eye to take in objects not only in a strait direction, but also those ich are either before or behind it. It has the power of contracting or expanding itself to a great extent, so as to adapt its capacity to the degree of light in which the animal may happen to be placed. This faculty of expansion or contraction furnishes one of the best criterions for judging of its perfect or imperfect state. The eye-ball is moved in various directions by means of muscles, which are six in number. Grazing animals, however, have a seventh which is situated immediately at the back of the eye, and which appears to have been destined for the purpose of drawing it inwards to protect it from injury. There is also a large gland, called the lachrymal gland, which constantly supplies a fluid for keeping the surface of the eye moist and transparent. Within the anterior corner of the eye is placed a thin gristly membrane, whose inner surface is concave, so as to fit the outer convex surface of the eye-ball. This membrane, in the language of anatomy, is called the membrana nictitans, and is peculiar to all quadrupeds as well as birds. It can be brought over the eye at the will of the animal, and serves both for the purpose of defence as well as to wipe off any extraneous substance that may have lodged upon it. But so gross has the ignorance of anatomy been, and is to this day, amongst the generality of common Farriers, that they mistake this natural and useful appendage to the eye for a disease, and actually remove it by excision whenever the eye is inflamed or disordered in any other way. Surely this circumstance alone is sufficient to prove the necessity of a regular education in anatomy and physiology to qualify a man to practice the veterinary art. Still there is not a groom in any racing or hunting stable, but will talk of the "Hawes in the eye," (the vulgar name which has been given to this membrane) and will contend most strenuously for the necessity of its extirpation. The bleeding and superficial irritation which takes place on cutting away this membrane, sometimes relieves the eye when affected with a deep seated disease; but the consequence is that the animal is ever after irreparably deprived of a part which is indispensably necessary to keep the eye clean and to assist in protecting it from injury. The faculty of clear and distinct vision depends greatly on the external form of the eye. When it is either very large and globular, or, on the other hand, when it is comparatively small and flat, the animal will be near-sighted, and, in consequence of seeing objects imperfectly, will be inclined to start and turn round very unexpectedly and unpleasantly to the rider. The best proportion, therefore, is the middle size.

Dealers call the small eyes in a horse, "buck-eyes." This is certainly not a very appropriate application of terms, because the buck has a very large and prominent eye. The small eye, however, is generally considered as objectionable, and experience shews that it is naturally more disposed to disease than others of a different description. The best mode of examining a horse's eye is to place him just within the stable-door with his head fronting the light. In this position the light being confined to one point, the internal part of the eye is better seen than when the light enters it in various directions.

The person who examines should then stand within the stable, close behind the eye, and look through it towards the light, and this is not only the best mode of ascertaining whether the outer coat of the eye is clear and transparent, but it will also enable him to discover any specks within the pupil, which denote the beginning of a cataract, and which indicate, beyond a doubt, that the eye has been diseased at some former period.

It is also necessary to notice whether the pupils are both of the same dimensions, and whether they diminish in size as the horse is brought into a stronger light. As most stables are more or less dark, the pupils of the eyes are larger in the stable than out of doors, hence when the animal is brought out they contract as he approaches the light. But if either of them does not contract, it is a certain proof that he is blind of that eye. On the other hand, a too great contraction of the pupil also denotes disease. This contraction is sometimes so remarkable that a pin's head would scarcely pass between the two lines of the iris, and this state of the eye occurs when it is inflamed, and when, in consequence of its irritable condition, the entrance of light becomes highly painful to the animal.

It has been considered an unfavourable circumstance when a deep wrinkle or furrow appears in the skin of the upper eye-lid. But this peculiarity has no connection with the internal parts of the eye, and consequently has no influence upon it whatever. It is generally more apparent in old horses than in others. The upper eye-lid is furnished with eye-lashes for the purpose of a shade, so as to moderate the action of the light from above. Some foolish grooms, in their great fondness for using the scissars, trim these eye-lashes by cutting them off nearly close to the lid. The consequence of this absurd practice is that the animal suffers great inconvenience from the sun whilst he is travelling, and thereby is more apt to shy from seeing objects imperfectly owing to the dazzling glare of light which he has not the means of intercepting.

Dark stables are very pernicious to the eyes, as the sensibility of the retina or optic nerve becomes weaker, and in some degree paralysed for want of a sufficient stimulus from the light. The winkers of the bridle in coach or waggon harness also occasion much inconvenience if they are not well fitted, so as to avoid any pressure against the eye, or impediment to the motion of the eye-lids, but even this inconvenience is in some degree balanced by the winker proving a defence against those blows which the brutality of the driver sometimes inflicts in the moments of his violence and caprice. The barbarous custom of keeping coach-horses reined up tight with the gag rein for two or three hours without intermission, occasions such a pressure against the jugular veins as to impede the free circulation of the blood through the head, and furnishes another cause of disease in the eyes, which is not generally suspected by those who have not attended to that circumstance.

The eye is generally of the same colour in all horses, with the exception of some that have what are called wall-eyes, and others that have eyes of the same colour as those of the ferret. The wall-eye is occasioned by the iris or pupil being partly coloured with white, and the ferret-eye is produced by its being of a reddish cast. The king's Hanove-

rian cream-coloured horses have eyes of this description. There is a vulgar notion that wall-eyes never become blind, but as no anatomical or phisiological difference exists between those eyes and others, it must be pretty evident that such a theory is built upon no rational basis whatever.

At the anterior corner of the lower eye-lid is placed the orifice of a small duct which runs down the inside of the nose and opens about two inches above the nostril. It is through this tube that the tears or the fluid which is furnished by the lacrymal gland for the purpose of keeping the surface of the eye moist, empties itself into the nose. But it sometimes happens that the lower orifice of the duct or tube is choaked up with dust so as to prevent the passage of the fluid, and in that case it overflows at the eye, and occasions considerable inconvenience to the animal. The best mode of removing this is by forcing up some plain water with a small syringe, which may be introduced at the lower orifice within the nostril.

The common Farriers are to ally ignorant both of the existence and the seat of this tube, and instances have occurred where the orifice within the nostril has been mistaken for an ulcer, and the horse in consequence pronounced to be glandered. Some horses are subject to what is called moon blindness, which is a periodical inflammation of the eyes, and thence it has been supposed to be dependant on the changes of the moon. The eyes may be suddenly affected during a hard chase, and a temporary blindness brought on by the blood being determined with great force to the head.

This sometimes occurs, and is very probably one cause of those dangerous mistakes which horses make at their leaps when in that condition. The sharp effluvia which arises from the litter in stables that are not well cleansed is very irritating to the eye, and frequently produces inflammation.

But the principal source of disease in the eye, is the high feeding upon dry food which occasions a constant state of costiveness in the intestines, and the consequences of this high feeding are sometimes much aggravated by want of exercise, and in proof of this fact it often happens that horses which have been subject to periodical disease in the eye, have perfectly recovered by daily labour in a post-chaise or a mail-coach.

Whenever the system becomes overcharged by high feeding the animal will be more disposed to inflammatory attacks; and, to obviate this consequence of excess, he must be reduced either by purging and bleeding, or by constant labour; and the last is certainly the most natural, as well as the least hazardous mode of effecting that object.

ON THE DIFFERENT BREEDS OF HORSES.

Although the horse is common to most parts of the habitable globe, yet there is a considerable difference in his external form and physical properties, and it is a matter well worth the attention of every British sportsman to investigate and to understand wherein the difference consists.

Much of this variety may be attributed to peculiarity of soil and climate, especially in regard to size, which it is reasonable to conclude must depend greatly on the abundance or the scarcity of pasturage. The huge Flemish horse and the Shetland pony furnish a sufficient contrast to warrant such a conclusion. The extremes of heat and cold are alike adverse to the production of herbage in any luxuriant degree, nor are they so favourable to the growth of animal bodies as the more temperate climates. It is supposed that the common Welsh pony was originally the only breed peculiar to Great Britain, and that our blood-horses have been produced by an intermixture with the Arabian, and our cart-horses with the Flemish. Whether this position be well founded or not, it is certain that the English blood-horse combines the properties of symmetry, speed and strength in a degree superior to any other in the known world.

The Arabian horse, in proportion to his size, possesses these qualities in an equal degree, and the only difference is, that we procure them on a larger scale by crossing him with mares of this country. Still, as the Arabian horse is undoubtedly the parent stock from whence this excellence arises, he ought in justice to take precedence of all others.

But there exists a great difference in the degree of excellence amongst them as well as amongst any other breed, and it is certain that the major part of those which have been brought to England are of a very inferior description, and were probably selected by persons who were not qualified to judge of those matters.

And it also happens that every foreign horse which is introduced into this country is called an Arabian, whether he be Spanish, Barb, Turk, or Hanoverian, whereas, in truth, there is as much real difference between the true Arabian horse and any one of those just mentioned, as there is betwixt gold and brass.

The Spanish horse is the worst of his species in the creation. He has neither strength, speed, nor durability. His form is the very reverse of excellence in every point. A long head, narrow front, small eyes, a large bony and prominent nose, small nostrils, thick leather lips, narrow jaws, thick throat, heavy and fleshy neck, upright and thick shoulders, small chest, short and thin arm, long and slight shank, small joints, long sloping pasterns and narrow hoofs, flat ribs, hollow back, short quarters, small round thighs, weak hocks, cat hammed,

OSCAR (bred by Ex. Turnor Esq.r)

Dark brown Horse; He was got by Saltram, (the best Horse of his Year & Sire of many good Racers) his dam by Highflyer, Grand dam by Herod, Great Grand dam (Miss Middleton) by Regulus, Great Gr.t Grand dam (Camilla) by a Son of Bay Bolton, Bartlets, Childers, Honeywoods Arabian, dam of the 2 True Blues; at 3 Years old, he won a Handicap Sweepstakes of 15 Gu.s each 2 Year Old Course, beating Drumator, Mouse, Cypress & Duplicity; he won the 2.nd Class of the Oatlands Stakes of 50 Gu.s (10 Subscribers) beating Lady Bull, Warter, Stamford, Play or Pay, Ambrosio, Aimator, Jupiter &c. at 4 Years Old, at Brocket Hall Herts. £.50. beating Combatant & Sadler, 1709. the 2.nd & last Year of the Oct. Oatlands Stakes of 30 Gu.s each (13 Subscribers) beating Chippenham, M.r Wilsons B.C. by Buzzard, out of Racket, Aimator, Lady Bull, Wrangler &c. &c. Craven Meeting Apr. 14 1800. Subscription of 10. Gu.s each, beating First Fruits, Lord Clermonts, B.C. by Meteor, Diamond, Voltaire &c. &c. Subscription Plate of £.50. beating Georgiana Quiz, Antrim Vernator &c. &c. in the Houghton Meeting. 1800 received f.t from M. Heathcotes Warter across the Flat 500. h. f.t was Sold at Tattersals for 310 Guineas.

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round croupe, and a coarse bushy tail, appearing as if it were stuck into the rump. And in regard to his action, he raises his fore-leg high in a perpendicular direction without advancing his shoulder, throwing his feet outwards every time they are suspended in the air.

The reader, who is a judge of horses, and who has ever seen one of the Spanish breed, will know full well that the above description is in no degree exaggerated.

The Barbary horse is somewhat less objectionable than the Spanish, both in regard to speed and bottom, as is proved by tracing some of our best racing blood to a cross with that breed; but his external form is by no means well adapted for general purposes, being high on the leg, and narrow in his body and croupe. His action however is the reverse of that of the Spanish horse, as he moves with a strait leg, and very near the ground.

The Turkish horse is a strong, sprightly little animal, with good and safe action, and when crossed with large English half-bred mares is likely to produce a very serviceable stock, either for the coach or the saddle. The racing calendar enumerates some Turkish stallions in the different pedigrees which it contains.

The Hanoverian horse is of a good size, with rather high action, and in general grand in his forehand, though somewhat light in his ribs. When crossed with English blood mares he gets good hackneys, and excellent coach-horses. The regiment of the Scotch Greys some years ago had a Hanoverian stallion which travelled with them to their different quarters round the country. Several farmers' mares were sent to this horse whilst the regiment was stationed in Warwickshire, and although he was by no means a superior horse in his shape or appearance, still he got some very useful well-formed stock, and with good and safe action. The German and Danish horses have a pretty close affinity with the Hanoverian. Holstein is said to produce a very excellent breed. The common French horse is a very indifferent animal, the best are bred in Normandy. The Russian horses, especially those upon which the Cossacks are mounted, are very strong both in make and constitution, but they have no pretentions to beauty, having rather coarse bony heads, with strait necks, and being what is called ragged hipped, and cat-hammed, that is to say, with their hocks standing close together. But they have clean flat legs with little hair at their heels, and certainly have better blood in them than their external appearance testifies.

They are evidently well adapted for he description of service in which they are used, perhaps better than those of any other country whatsoever.

The horse which Platoff rode as his charger, and which he brought with him to England, is one of the strongest animals of his height, without useless weight, that can be conceived. Although he was twenty years old and had been ridden in several very severe campaigns, yet his legs were as clean and perfect as on the day he was foaled. His arms and thighs were remarkably muscular, and his chest deep and capacious. His action was firm and nimble, and he could walk at least five miles in the hour.

There was also another capital horse ridden by one of the private Cossacks who

was here in attendance upon Platoff, and which was sold to an English gentleman for one hundred guineas.

The Persian horses are large and bony, shewing much blood. They are bred from Arabian horses, and owing to the good pasturage of most parts of Persia, they attain a larger size than the latter. Sir Gore Ousely has lately brought some to this country, which may be considered as good specimens of the breed.

It is very probable that some good horses might be found amongst those which run wild in South America, but at present we possess but little information respecting them, except that they may be bought for a dollar each, being caught and slaughtered merely for their skins.

The superior excellence of the English blood-horse may be ascribed to the care and attention bestowed upon breeding for the turf, and which system has been uniformly kept up for a great number of years. Still it is doubted by some old sportsmen whether the present race is equal to those which existed at the time of the Godolphin Arabian, and which were his first produce. It is thought, and perhaps with some reason, that the present custom of running them so young, has led to a slighter breed than formerly, as small light horses are known to acquire their strength much earlier than those of a larger frame.

If this be the fact, it is a circumstance much to be deplored, because it must have a tendency more or less to deteriorate the breed for general purposes.

There is, however, at least one antidote to such an evil, to be found in the Prince Regent's stud at Hampton-court, at which place the greatest pains are taken to breed thorough-bred horses of large size and bone, and if conclusions are to be drawn from the specimens which the young stock exhibits, it is evident that those exertions have been crowned with the greatest success. Indeed, the whole of that establishment is conducted on such an admirable and judicious system as cannot fail of attaining the object it has in view, as far as it is possible to be accomplished.

As it is pretty well ascertained that our best breed of horses has been produced from Arabian stallions, it becomes a matter of some consideration whether a more frequent recurrence to a first cross from horses of that country than is generally practised would not be beneficial, in regard to keeping up the original blood. But there is a very prevalent opinion amongst gentlemen on the turf, that the first cross from an Arabian stallion seldom answers the expectation of the breeder, and as they breed for immediate use, few of them choose to incur the expense of waiting for the produce of a second cross. That this opinion may in some degree be well-founded, is by no means improbable, especially when we reflect on the very inferior qualities both in shape and action exhibited by many of those horses which are imported as Arabians, but which, as has before been observed, have no real claim whatever to that appellation.

That there are occasionally some capital horses brought over from that country there can be no doubt. There is one in the Prince Regent's possession called the Cole Arabian, which though apparently a small animal, is in reality one of the strongest and largest horses of his compass ever seen, shewing, at

H.B. Chalon del. Painter to H.R.H. the Prince Regent. Engraved by J. Roberts

BENEDICT (late L.d Foley's)

By Remembrancer, out of Beatrice, beat Col. Udney's B. C. Truffle R.M. 300 Gu.s h. ft. — Beat Lord Darlington's Br. C. Cwrw 8 st. 4 lb. each R.M. 300 Gu.s — Rec.d 80 Gu.s from Sir C. Bunbury's Bl. C. Smolensko 3 Ys. old 8 st. T.M.M. 200 Gu.s h. ft. &c. &c. — He was sold at Tattersall's last year to H. Thornhill Esq.re to be sent to India

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the same time the highest blood possible, with excellent legs and well fixed to the body. The Earl of Dartmouth has also a very capital Arabian at his seat at Sandwell, near Birmingham, and there is one belonging to Mr. Weston, horse-dealer, of London Wall, Moorfields, which is most excellent in his shape and action, and which promises to get stock every way adapted both for strength and speed. The importation of an Arabian horse is attended not only with considerable difficulty, but with such an expense as few private individuals choose to bear;* the most likely means therefore of obtaining any valuable animals of that breed, would be by a subscription amongst a certain number of breeders, and by sending out a person to that country properly skilled and qualified to make a judicious selection.

Mr. Moorcroft, veterinary surgeon, late of Oxford-street, but now in the service of the East India Company, has been stationed in that country for some time, and it is to be hoped he will avail himself of the opportunity which his occupation affords him of procuring some of the very best specimens of that race of horses. The maintaining the acknowledged superiority of English horses is an object of national importance, especially in regard to the mounting of our cavalry, as the ever memorable day of Waterloo will sufficiently testify.

One cause of the increase of a bad breed of horses in the country arises from the want of proper stallions. The major part of those which are led about from one market-town to another, consist of ill-formed and mongrel-bred animals, made extremely fat for the purpose of concealing the natural defects in their shape, added to which they are often blind, lame, and broken-winded. They are generally in the possession of some low fellow, who can just raise money enough to purchase an inferior blood-horse, that has run once or twice for country sweepstakes, totally disregarding his natural form and properties. These generally cover at one guinea, or one guinea and a half, and it is to such horses as these that the farmers constantly send their mares, and one consequence of this low price is, that the horse has more mares put to him than he ought to have, and the stock is weak and undersized in proportion to the excess. It is certainly not worth the while of any person to keep a good stallion at a lower rate than four or five guineas a mare; still such is the parsimony of the farmers in this respect, that they will not go beyond the old low price, although they have the conscience to ask eighty or a hundred guineas for their colts at four years old.

It is not more than two or three years ago that one of these country stallions, called, "Alligator," was in great vogue in Warwickshire and Staffordshire. The legs of this horse were naturally very badly formed, and they exhibited every disease that is incident to that part of the animal machine, having spavins, curbs, and ring-bones. Yet, as he stood sixteen hands high, these defects were disregarded, in the expectation that the size of his produce would compensate for all risk in other respects. It is customary with some of the agricultural societies to offer premiums for the best cart stallion, and though the

* The Earl of Elgin, whilst in Turkey, offered to a native, in a very humble station, five hundred pounds for an Arabian mare which he rode, but was refused.

prize is generally (and very erroneously) give to one of those unwieldy, black, hairy-legged brutes with which the country abounds, still it excites some emulation, and would, if directed by good judgment, have very beneficial effects. If the same system were adopted in regard to saddle-stallions it would tend to establish a greater and more extensive reformation in the choice of proper horses to breed from, than any other means whatever, because, by bringing together all the stallions in the neighbourhood before such a general assemblage of country gentlemen and farmers as attend agricultural meetings, it would afford an opportunity of making critical observations on the comparative merits of the different animals, and would thereby expose the defects of those that were inferior, and probably prevent their further propagation.

The foregoing may be considered as radical errors in the present system of breeding, but these errors, adverse as they are, must be greatly aggravated by the too prevalent custom of starving colts for a year or two, until the time of their being brought into work. This is, undoubtedly, a most mistaken economy, because it must impede the growth of the animal at a period when nature requires an extra supply to support the constant increase of the whole machine. And moreover, it is a very serious injury to the interest of the public, as it reduces the power and utility of an animal that is indispensably essential both to the necessities and luxuries of life. It is a folly, however, which in some measure carries its own punishment with it, by lessening the value of the horse when brought to market.

In breeding of horses it is very probable that certain local circumstances, in regard to soil and pasturage, have a considerable influence on the size and natural properties of the animal.

Light soils, and a hilly surface of ground, generally produce clean, vigorous, and active horses, and probably there is no county in England where a better sort are bred than in Shropshire. Yorkshire and Lincolnshire are celebrated for carriage-horses, and many very good ones are reared in those districts, but the major part are more or less deficient in those qualities both of form and constitution which distinguish the Shropshire breed from most others.

The chief radical point to be attended to in breeding is a proper adaptation between the horse and mare. With a view to give size to coach-horses, it is very usual to cross with thoroughbred stallions and cart mares. But this plan seldom succeeds in producing an equal combination of the form and quality of both.

The two animals are too remote from each other in all their natural properties, and the produce is very often a light carcased horse with a large coarse head and long slight egs.

A horse sixteen or seventeen hands high certainly has a grander effect in harness than one of a lower size, but it is a fact pretty well known by all persons conversant with the subject that the proportion of good middle-sized horses with good ones of larger dimensions is at least as one hundred to one. The strength of the animal does not consist in superior height but in the disposition and size of the muscles of the body, and this ought to be the first consideration in the practice of breeding; for, in reality, the

length of the legs has nothing to do with the size of the body, as horses of fourteen hands high are very frequently much larger than those that are one or two hands higher.

In the selection of a stallion, the first object to be attended to is, that he shall have no superfluous weight in his body. The head, too, is a very material point, as it is strongly indicative of the natural qualities of the animal, it being a very rare occurrence to meet with a bad horse with a light and well-formed head.

In proof of this argument, it may generally be observed, that great fleshy-legged horses have coarse large heads with narrow foreheads, small eyes and nostrils, and in consequence of their soft and relaxed texture, are almost universally affected with swelled legs and greasy heels. On the contrary, a small light head, bold prominent eyes, and large open nostrils, generally accompanies strength of body and vigour of constitution.

This kind of head is almost invariably peculiar to the Arabian horse, and to most others that are bred in hot climates.

In crossing the breed, it has generally been supposed that opposite proportions in the horse and mare are necessary to produce good stock—thus, it is very common to put a long backed mare to a short backed stallion, and *vice versa,* in the expectation that the offspring will possess the happy medium between both. But such an expectation is almost always fallacious, and seldom answers the purpose intended. It is always a hazardous speculation to breed from an indifferent animal on either side, and it is certainly a more judicious employment of time and trouble, and more likely to be crowned with success, to breed from two animals originally perfect, than to propagate where one of them i radically defective.

Still, breeders of every description of horses talk about large roomy mares, which in general are nothing but great-bellied and long-backed animals, with scarcely any quarters or legs.

This capaciousness of belly is supposed to be essential to the production of large colts, but such an opinion ought not to be considered as absolute, for it frequently happens that these large roomy mares, as they are called, bring the smallest colts. The size of the foal is most probably dependant on secret and invisible causes, such as strength or weakness of constitution in the sire or dam.

A propensity to particular diseases may be very reasonably concluded to be hereditary, especially in regard to blindness and broken wind; and it certainly is an injudicious course of breeding to propagate from horses that are labouring under those defects. In the choice of a stallion, the legs and feet are of the first importance, for however excellent the natural properties of his produce may be in respect to speed, wind, and constitution, yet the use of those qualifications will be but of short duration if the legs and feet are imperfect

There is naturally a very great difference in the physical constitution of horses' feet; some being so prone to dryness and inflammation as never to be perfectly sound and healthy whilst kept in the stable. Horses with feet of this description, generally begin to fail even at six or seven years old, and consequently become a source of constant vexation and disappointment to the owner.

The temper of a stallion is also a subject

for consideration. The use of horses, even those of the most gentle dispositions, is always attended with some risk and danger, but where they are naturally vicious, of course that danger must be increased in a great degree.

All these considerations, however, are too frequently sacrificed to pedigree; hence, breeders very often attend more to name than to any visible properties. The prevalent custom of castrating so many horses in this country, leaves but very few stallions, and of course diminishes the number to chuse from, as well as the chance of a good selection, and how often is it a matter of regret when we see a remarkably fine and excellent gelding, that such an animal should have been deprived of the means of continuing his species.

In some parts of Germany the breeding of horses is deemed of such importance that the government provides stallions for the different districts. Such a system, when conducted and regulated by good judgment, must he highly beneficial, and it might very easily be carried into effect in this country by attaching to every regiment of cavalry one or more stallions of superior form and qualities, which should be stationed with the regiment wherever it might happen to be quartered, and which should cover a certain number of farmers' mares free of expence. The Scotch Greys adopted this plan some years ago, and with good effect.

The most favourite stallions for the turf of late years have been Eclipse and Highflyer, and the preference has been given to each alternately, according to the prevailing opinion of the day. Mercury was got by Eclipse, and has been the progenitor of a long list of excellent horses, remarkable for their power, both in make and constitution. Sir Peter Teazle was got by Highflyer, and has also given birth to a great number of capital horses, but they do not generally shew that high blood and that clean and vigorous form which are so evident in the Mercury breed. Meteor, one of this breed, was perhaps the strongest and most beautiful horse of his size that ever existed.

In breeding for the turf it is customary to arrange it so that the foals may be dropped in the winter, by which means an additional half-year is obtained in the age, as the time of calculating the age is always from the month of May.

But this is a complete inversion of the order of nature, and the consequence is that the dams are seldom so well furnished with milk as they are at a period when the weather is warmer, and the grass in a growing state, and upon that account the foal is reared with more risk and difficulty, as the milk has not that purgative quality which is necessary to cleanse its intestines soon after it is dropped, whence an extreme costiveness sometimes ensues, which is often fatal to the young animal.

Carrots, or any other succulent roots, constitute proper food for the mare, and assist considerably in the production of milk.

Mares, especially those selected for breeding for the turf, continue to breed to a very advanced age; but it is a matter of some doubt, whether the produce is so strong and vigorous as those which are generated at an earlier age. Very old mares do not graze well on account of their teeth, and therefore require to be supported by artificial means, hence their natural resources for

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supplying the foal with nutrition must be much diminished.

The colour of horses has been supposed by some to be an object of importance. It is pretty certain there are fewer thorough-bred black horses than of any other colour.

It has been remarked, and with some truth, that the chesnut colour is generally accompanied with more irritability and impetuosity of temper than any other; they are also considered to be more delicate in their constitution.

But there is an old adage, that a good horse cannot be of a bad colour, and perhaps it is not a circumstance of much radical importance in breeding, provided the animal be excellent in his general properties.

The combination between the horse and the ass produces the mule, which is certainly a very useful animal, particularly in hilly or rocky countries. They are not so strong as the horse in bodily powers, but they are much hardier in constitution, and are much less subject to disease, and live and are capable of being useful to a far more advanced age, some of them reaching forty and even nearly fifty years. They are, however, incapable of propagating from a self-evident law of nature, which is necessary to keep up a distinction of species amongst different animals, which otherwise would be totally lost or confounded by such intermixtures. Buffon, and other French naturalists, speak of an animal engendered between the horse and the cow, and which they call, "a Jumart." If such an animal can be produced, (which, however, is very doubtful) it must be of very little use for any of the purposes in which either of its progenitors are usually employed.

By partaking of the properties of the horse it must become no longer a proper article of food for man, and if of the cow it must be much less adapted for labour, especially for the saddle.

The breeding of horses to be rendered generally useful, should be conducted on a more settled and defined system than it now is. It is an universal complaint, that good saddle or road-horses are very scarce. The first qualification of a road-horse should be that of safe and pleasant action, and this is very rarely met with in thorough-bred horses, for the animal may have great speed, and may perhaps avoid stumbling when going at his greatest exertion, but may be very careless and unsafe in his slower paces. The country stallions, as has been before observed, almost universally consist of thorough-bred horses that have been selected more for their pedigree and racing performances than for any other properties. Many of these are very badly formed in their legs, and shew evident signs of bad action by the scars on their fetlock-joints, occasioned by striking one leg against another.

As this is the description of horses to which the farmers' mares are generally sent, it is not very surprising that so few good road-horses are to be found in the country; and as fox-hunting is become so prevailing an amusement in almost every county in England, the farmer's object is, more to breed hunters than hackneys, on account of their obtaining a higher price for the produce; because, from some very unaccountable reason, few riders will give above sixty or seventy guineas for a road-horse, when in fact a good one of that description is worth more money than three-fourths of the hunters put together.

The proper stallion for breeding road-horses should be what is called half-bred, with a small head, a well-turned neck, issuing high out of his breast, shoulders deep, and not too narrow at the upper part or withers, rather a broad chest, especially behind the elbow, long muscular arm and short shank. He should go light in hand, with great liberty in his shoulders, and the knee should be elevated and advanced during the trot, so as to be seen by the rider, projecting beyond the breast. His back should be short and ribbed home, his girth large, and his belly round. His hind-quarters should be bold and muscular, and not too long in the thigh and leg. This is a kind of stallion but too seldom to be met with, yet it is from such as these that good road and cavalry-horses are chiefly to be expected, and it would be highly advantageous to the service, if such a stallion could be attached to each regiment on the plan suggested in a former part of this chapter. There was a horse in Lincolnshire a few years ago, known by the name of the "useful Cub," which was a strong half-bred animal, and a very fast trotter. Many very useful and excellent hackneys were bred from him, and it is to be lamented that there are not more stallions of the same description, but it is very seldom that half-bred horses are kept not castrated, from the idea, and certainly a very erroneous one, that they are not worth breeding from. The high rent which land has borne of late years, has undoubtedly operated very powerfully against the rearing of middle-priced horses, as little or no profit could arise from a horse kept until he was four or five years old, when sold under sixty guineas, especially as he could not be made useful, as cart colts are at two years old, by working them at plough a few hours daily. Indeed it is a matter of surprise, how it has been possible to supply the regiments of cavalry at the regulation price, and it is to this cause that may be ascribed the circumstance of so many undersized weak animals having been admitted into several corps of light-dragoons, the bad consequences of which were experienced at the late ever-memorable battle, by their being unable to make any serious impression in their charges for want of sufficient strength and substance.

The French veterinary writers and naturalists have written several voluminous treatises on the subject of breeding. One of the latest of these authors, a Monsieur Hugard, setting aside the verbosity so common to writers of that country, has given some useful and pertinent remarks. He supposes that the general race of horses throughout the globe has sprung from one common stock, the Arabian horse. He then proceeds to state, that all the improvement in the breed of French horses arose from those foreign stallions which were brought into France after the crusades, and that their excellence would not have degenerated or disappeared but from the omission of returning occasionally to the original source which their neighbours had known how to turn to such advantage. He says, "It is scarcely two ages ago that we were greatly superior to them in this respect, and that Henry IV. sent to queen Elizabeth some beautiful horses, from the stud at Berri, which were much finer than any that England possessed at that period. We have also seen in our own time, Bourgelat and Chabert send stallions from Normandy

into England of an excellent quality, which were disregarded and undervalued by us, but which the English, who were better judges than ourselves, knew well how to appreciate. We are at this day behind-hand upon this point with almost all the rest of Europe. Above all, the English have not only far surpassed us; but they have had the address to profit by our negligence and our indolence, to which may also be added our ignorance, in turning to their own use horses which we despised, or of the properties of which we were incapable of forming a just estimate. The stallion known by the name of the Godolphin Arabian, was bought at Paris for eighteen louis d'or, as a horse of little value, and from which we had obtained no stock. He produced afterwards in England, Babraham, Mask, Regulus, and several other excellent race-horses, for the descendants of which we have since paid enormous prices. It is therefore to be hoped, that, become more enlightened, and more sensible of our true interests, and favoured by the beauty of our atmosphere, and the salubrity of our climate and our pasturages, we shall hasten to regain what we have lost by our apathy, and employ, in the improvement of the breed of our horses, those excessive sums which we are obliged to export in the purchase of those of which we are in want."

This is certainly a very candid admission for a Frenchman, especially one of the present day. Another French author, *Preseau de Dampierre*, speaking of English horses, says, "their draught-horses are not better than our Norman horses, and the inferiority of the English breed, when unmixed with the Arabian, proves the necessity of the pains which they have taken for an improvement in that respect. The regeneration, however, of English horses has been carried to its greatest height, as is the opinion of one of the writers of that nation. In the year 1794, George Culley states, that latterly very few Arabian or other foreign horses have been imported into England; breeders of race-horses having discovered that they could obtain a better stock by using the best English stallions only, that is to say, of the improved race, and known by the appellation of blood-horses." *Preseau de Dampierre* then goes on to state, "It must not be supposed, as several writers on the subject have pretended, that it is to chance, or to the excellence of the mares, or to climate that England owes the improvement of her breed, and to prove this assertion, let us refer to Richard Wall, who speaks as follows on this subject:—'The English are well convinced, that so far from leaving the breeding of horses to chance alone, it requires, on the contrary, the greatest precautions, and ought to be conducted on the result of close attention and observation.' This remark of Wall's, from which his countrymen appear to have profited, is useful to the majority of our French breeders, who undoubtedly have the opportunity of profiting by it also. He adds, however, an absurd opinion, which, as well as many others, exist in England, in regard to France, that she cannot rear horses so well as England. It is certain, however, that France, which abounds in forage as well as England, may have excellent horses of all descriptions, and the only reason why she has not, arises from her having hitherto pursued a wrong method for that purpose. The English horses," he continues, "are the most cele-

brated in Europe, but their establishments for breeding being not so complete as ours, and their climate in no part of it to be compared with the south of France, we evidently have many advantages which they do not possess.

"The crossing of the Arabian and other Asiatic horses with the English breed, and the farther crossing of their produce with each other, has naturally produced a division into five classes, which are very distinct and have been well preserved.

"The first is the race-horse, proceeding directly from either an Arabian or Barb with an English mare that has been bred by a similar cross. This is what the English call their highest blood.

"The second is the hunter, arising from a blood-horse and a half-bred mare. This class is very numerous—they are stronger than the first and capable of undergoing great fatigue.

"The third is the result of a cross of the hunter with mares of a more common description, these constitute the coach-horse. It is from these two classes that the English export so many throughout Europe, and particularly to France.

"The fourth is the draught-horse, the produce of the former with the strongest mares of the country. There are some of this breed of the greatest size, and in their form and character not unlike the horses which are seen cast in bronze.

"The fifth has no particular character, being the result of accidental crossing among the rest. Still, notwithstanding this mixture, the influence of the Arabian blood may be traced in some degree even amongst the most common sort.

"The English have procured Arabian horses, and have devoted the greatest attention and care to their system of breeding, particularly by publishing the genealogy of those which they considered as their best produce. They have well understood the importance of this publication, for, by these means, they have been able to have recourse to stallions and mares that approached the nearest to the original blood, for the purpose of breeding, and thereby to preserve the breed from degenerating.

"Such is the state of breeding-horses in England, where they pretend that they have no occasion to return to Arabian horses, an opinion which appears to be founded rather on the estimation in which the English hold their own breed, or the fictitious value which they wish to put upon them, than upon fact.

"The race-horse is, in England, a grand object of luxury and expense. Many rich families have been ruined by the enormous wagers which take place at their races, as well as the expence of keeping the horses. It will hardly be believed that they have carried their system to such an excess as to cover *whole fields with sand*, in order to produce a more delicate herbage, and more assimilated to that which grows in Arabia from whence the blood of these race-horses originated, from the apprehension that the coarser sort of grass would affect their wind, and that five or six grooms, at six guineas per month each, are employed to take care of one horse, and that they warm the water for the horse to drink in winter, with other ridiculous customs unknown even to the Arabs."

It is usually supposed that the mare has conceived when she shews no farther desire for the horse, but it is difficult to ascertain

the fact with any certainty until the sixth month.

About this period, by looking attentively at the mare's flanks immediately after she has drunk any considerable quantity of water, some convulsive motions or jerks may be perceived. These movements are occasioned by the struggling of the colt, from its experiencing some inconvenience, either on account of the coldness of the water producing a sympathetic impulse on the matrix, or from the stomach suddenly occupying more space in the abdomen than it did whilst it was empty. The length of time that the mare carries her foal is not more certain than it is in animals of other species. It is generally, however, twelve months. Cart-mares, and some also of the hackney-kind, work constantly until within a short time of their foaling, and provided their labour does not exceed the bounds of moderation, it is undoubtedly beneficial both in regard to the health of the mare as well as to the growth of the foal that is within her.

In womankind the advantages of bodily labour are peculiarly manifest, and hence the rustic mother escapes many of the evils and inconveniencies attending the process of child-bearing to which the more exalted part of her sex are generally subject; nor is the difference in their respective offspring less remarkable in the qualities of health, size, and strength.

Breeding-mares that are used in harness should not be exposed to any violent exertion, such as are called dead-pulls at a heavy load or in bad roads, as the effect might be dangerous and might bring on abortion.

It is customary to put the mare to the horse about nine days after she has foaled. There are some doubts, however, respecting the propriety of this practice from the consideration that it is exacting too much from the mare to oblige her to nourish her foal and to support another within her at the same time and upon this account it is imagined that either one or both must suffer by such a division of their natural nutriment.

On the other hand, as the mare voluntarily shews a desire for the horse so soon after foaling, it may be presumed that nature would not have dictated such a course without supplying the means of accomplishing her object. At all events, it is most prudent to allow an interval of twelve months with old mares, which naturally cannot have the same powers as those that are younger.

The approach of the period of foaling is indicated by the dropping of the flanks, and by the enlargement of the udder. As soon as these symptoms appear the mare should be separated from other horses, and should be left at perfect liberty. Should she experience any difficulty in foaling, proper assistance should be given to her, but not until it is absolutely necessary, as much harm may be done by premature officiousness.

When it is sufficiently evident that the mare cannot foal without help, an examination by the hand should take place to ascertain if the foal presents itself in a proper position, which is with the head and fore legs foremost. In case the legs are bent, or out of a strait line with the head, they must be placed right, and the rest left to nature, but if the difficulty still continues, the mare must be assisted by taking hold of the legs of the foal and pulling gently every time the mare makes an effort, which may be seen by the temporary protusion of the nose and feet, but the assist-

ant must not pull except the nose of the foal is visible as well as the legs, and then only at the same moment that the mare makes an effort of her own accord.

The custom of giving the mare certain drinks for the imaginary purpose of strengthening her, or increasing her milk, are not only ridiculous but often dangerous. After foaling she cannot be left too quiet. There is an absurd notion that the first foal is seldom so large as the rest, on account of the mare's belly not being so much distended and so capacious as it afterwards becomes. Such an idea, however, is founded upon no rational basis whatsoever.

When the colt is about three months old it should be accustomed to be handled, and to have its legs taken up and the feet gently hammered; it should also be haltered, and led about a few minutes every day. By these means it becomes familiar with man, and submits much more readily to the process of shoeing and being broke; it is also of great advantage in case of its being attacked with disease, or of receiving any bodily wound or hurt in its limbs, as it renders it much easier to give it medicine internally, or to use external applications.

It is the custom with some breeders to dock the tails of their colts at six or nine months old, as it is said to prevent the necessity of nicking, but even if such be the result, it is a matter of some doubt whether this practice, by depriving the young animal of a part of his natural defence against the flies in the summer, is not detrimental to his growth, by exposing him to the perpetual torment arising from that source, and of course reducing his means of taking in a quantity of food in a given time, sufficient for his support.

It sometimes occurs, that colts, notwithstanding they are well fed, do not thrive. In this case they are generally hidebound, and their coats stare. This state of body is very frequently produced by worms, and until they are dislodged from the intestines by medicine, no change for the better can possibly take place. As nothing except purgatives will remove worms, two drachms of Soccotrine Aloes, mixed up with the same quantity of Castile soap, may be given at a dose, to a colt not under a year old, increasing the dose two drachms, if two years old, and two more if three years old. The dose may be repeated once or twice, as occasion may require, at intervals of a week or ten days. The same medicine, and in the same proportions, may be given also after the colt has recovered from the strangles, at which period it is useful to carry off any remains of that disease which may be left lurking in the habit. At two years and a half old, colts shed two of their front teeth, viz. the two centre teeth. When this takes place they are rendered for a time incapable of biting the grass so well as they did before, and this inconvenience must exist in a greater or less degree, until the new teeth grow up to a level with the rest. In this case it is beneficial to give them mashes made of bran, with either hay or straw cut into chaff.

At a year old, at latest, the colts and fillies should be separated and kept apart from each other, until the colts are castrated. This precaution should be attended to, to prevent any premature attempts to procreate their species.

The best season of the year for performing the operation of castration is in the month of May, at which time the tempe-

rature of the atmosphere is generally mild and equal. Some breeders defer the operation until the colt is three years old, with the view of giving him a fuller and loftier crest and forehand, and it doubtless has considerable influence in the form and size of those parts of the animal. It also gives a stronger and more decided character to the limbs, especially the joints, and it renders the coat of a deeper and brighter tone of colour than is founed in the gelding. The operation is performed by country practitioners with great dexterity, and is very seldom attended with the loss of the patient. They almost invariably use the actual cautery or hot iron. There are, however, some Veterinary Surgeons in London, who prefer ligature, particularly Mr. Field, who pursues this method with the greatest success on stallions of all ages, and with less inconvenience to the animal than generally attends the use of the actual cautery. If the colt is two or three years old, (or indeed at any age subsequent to that date) and is full of flesh, it will be prudent to reduce him a little by purgatives previously to his undergoing the operation.

Castration is practised more in England than in any other part of Europe. It certainly renders the animal more tractable, and it gives the opportunity of turning him to grass with mares as well as with horses with less danger of mischief. But it enfeebles him both in make and constitution, for the gelding is certainly more delicate and less capable of bearing the extremes of heat and cold, and it is worthy of observation that even the stallions which work in the brewers' drays in London, and which are never cloathed in the stable, and are often obliged to stand many hours in the streets, are always fuller of flesh and finer in their coats than the geldings of the same description. In the shape and character of the head there is a very evident difference between the stallion and the gelding. In the stallion the forehead is broader; and the eyes bolder and more prominent; the nostrils are larger and capable of greater expansion; the windpipe, or trachea, is larger; and hence, very probably, may be traced the cause why they are generally better winded than geldings. In neighing, also, the voice of the stallion is more deep and sonorous.

THE MULE.

Before closing the chapter upon breeding, it will be necessary to make some remarks on the nature and properties of this useful animal.

Mules are not bred in such great numbers in England as they are in some other parts of Europe, especially in Spain and Portugal. This has arisen, most probably, from our possessing such excellent horses of all descriptions; nevertheless mules, when properly bred, are most serviceable animals for several branches of labour, and with the exception of not being capable of propagating their species, must be equally profitable to the agriculturist as the horse, as they are certainly much hardier, less subject to disease, and possess their strength and vigour to a much more advanced age.

The mule may be produced either by the union of the horse with the female ass, or the male ass with the mare. The first, which is a more rare production than the latter, partakes more of the figure of the horse than the ass, and is much smaller, and consequently not so useful an animal.

In some parts of France great pains have been bestowed on the breeding of mules. The best sort have been reared in Franche Comté, Dauphiny, L'Auvergne, Languedoc, and Poitou. Monsieur Husard, in his treatise on horses and mules, refers to a memorial published by the council in the year 1717, which describes a species of asses found in Poitou which stood as high as the largest sized mule, but were not of the same shape. They are described as having a coat of hair, four or five inches in length all over the body, with their legs and hocks as large as those of a coach-horse.

These animals bore a great price, some being sold as high as five hundred crowns each. They were generally black, and the grey ones were not considered as so excellent. The cause of their high price was attributed chiefly to the difficulty of rearing them until three years of age, an age which three-fourths of them never reached. Several parts of Italy, and Egypt, and Malta, are in possession of a fine large breed of asses. These are the only sort proper to breed from, as the common English ass is very inferior to these both in size and strength. The late Mr. Skey, of Bewdley, in Worcestershire, bred mules for many years from a Spanish ass, and which animal, although he was not very remarkable for size or strength, produced, when crossed with large waggon-mares, mules sixteen hands high and of great bone and substance, and of equal strength with most waggon-horses of a middling size. There is now in the vicinity of London a team of four middle-sized mules, which frequently draw a waggon laden with lime, weighing in the whole four tons, with great resolution and steadiness.

Mules are particularly useful in military service, for transporting baggage and other appurtenances of an army. They live much

harder than the horse, and will eat a great variety of coarse herbage and plants, which the cattle will not touch. They are much less susceptible of disease, particularly of the inflammatory kind, and their hoofs are so hard and tough as not to want shoeing when employed in any labour that requires only a slow pace, or in any situation where the roads are soft or sandy.

The officers of the British army were sensible of their utility on the continent, and, at the conclusion of hostilities in the Peninsula, great numbers were brought to England and sold at good prices. Some of these now work in the hackney-coaches in the metropolis, and are undoubtedly superior in every respect to the wretched, undersized, and lame horses with which those vehicles abound. Such indeed is the life of a hackney-coach-horse that it is wonderful how he exists at all under the evils to which he is unavoidably exposed. For he seldom comes to that miserable employment until he has been rendered by disease of some description or other unfit for any of the more elevated pursuits of luxury, and in this reduced condition he is subjected to all the extremes of cold, hunger, and fatigue.

The Zebra and the Quagga are both evidently of the asinine species. They are both animals with whose natural properties we are but little acquainted, as very few of them are brought to this country.

The first of these, the Zebra, is remarkable for the beauty and regularity of the stripes which pervade his head, neck, body, and legs. This animal is singularly strong, in proportion with his size, especially in his loins and hocks, and has every indication of possessing great speed.

The Quagga is not so beautiful in regard to colour, but is shaped more like a horse. The Earl of Morton has some Quaggas on his estate in Scotland which are remarkably handsome and well-proportioned. It is not yet ascertained with certainty whether either of these animals will engender with the horse, but there can be no doubt, if such a thing be feasible, that the produce would be excellent for a great variety of purposes. In that case why should not the Zebra, crossed with a thorough-bred mare, get a good racer? Such an experiment is at least worth the trial.

It is a remarkable fact that the ass, let his breed or his colour be what it may, is *invariably* marked with a long stripe down his back, and with another across the withers, extending about half-way down the shoulders. There is a popular superstition attached to this circumstance in Catholic countries, which ascribes it to have been intended as a memorial of our Saviour's having entered Jerusalem riding on an ass, and that this mark represents the cross.

ON SHOEING

It being unavoidably necessary, in consequence of artificial roads, to protect the hoof from injury or from a too rapid consumption, by the application of an iron shoe, it becomes a matter of the first importance that it should be constructed in such a way as to adapt itself as nearly as possible to the shape of the foot, so as neither to impede the natural action of the leg by any false bearing upon the ground, nor to cramp or confine the elasticity of certain parts of the hoof. There are so many opinions upon this subject, that it might almost be supposed that there never had been any two horses in existence whose feet were alike. That there is some radical difference in the substance of the hoof, as well as a greater or less propensity to disease in different horses, cannot be denied, but the external form of it in the colt before he is shod is universally circular, the widest part being at the quarters. This form is evidently the best calculated for the office which the foot has to perform, for it gives the animal a firmness and stability, by increasing the surface upon which he has to stand, a circumstance of very material importance during his progression. The foot of the colt therefore being invariably circular in its healthy state, it might reasonably be supposed, that such a self-evident fact would be sufficient to remove all doubt respecting its natural form, as well as to point out the necessity of preserving that form as nearly as possible.

But extraordinary as it may appear, it is almost impossible to persuade a blacksmith to give the shoe the same shape, as he always makes it narrower at the quarter than the hoof, under the pretence that the horse would otherwise cut his fetlocks in going. It is probable also that the force of habit has no small influence on this occasion, for being accustomed to make shoes for aged horses, whose feet are straiter and narrower at the quarters, he can scarcely bring his hand to mould them in a more circular form. This custom, therefore, of making the shoe narrower than the hoof, in process of time, contracts the quarters and brings on all the bad consequences arising from such an unnatural alteration.

This shews how necessary it is that every owner of a colt should be peremptory in his orders to the blacksmith to shape the shoe precisely according to the hoof, for the evils arising from a contraction in the feet are never thoroughly or permanently removed by any means hitherto known or practised.

The hoof of a colt is so firm and leastic as to feel no inconvenience even from the hardest or roughest road. The only use, therefore, of applying a shoe, is to prevent its being worn away too rapidly by friction, and the narrower the shoe is in its surface the better; indeed, there is no occasion for its being wider than just to admit the nails. This also reduces the weight, which is evidently an object of consequence. And in

addition to this circumstance, it gives the foot a firmer hold of the ground, especially upon turf or upon soft slippery roads. The plates with which race-horses are shod before running are of this construction.

It has been before observed, in a former part of this treatise, that the practice of shoeing, even when conducted on the best and most scientific principles, is always more or less injurious to the foot. The principal cause of the mischief arises from the introduction of the nails, hence it would be a very desirable object to discover some mode of fixing the shoe without having recourse to that practice. Mr. Bracey Clarke, whose labours and researches have so long and so usefully been directed to the elucidation and improvement of the veterinary art, has made many strenuous but hitherto unsuccessful efforts to accomplish this object.

Whether his endeavours upon this point be ultimately attended with success or failure the public are indebted to him in no small degree, but there appears to be a radical and insurmountable obstacle existing in the form of the hoof, which must render all attempts to fix the shoe without nails hopeless and unavailing.

The hoof exhibits an inclined plane from the coronet to the ground, both in front and behind, both lines taking the same direction; hence, it is impossible to keep the shoe attached to it without great circular compression, especially upon the quarter and heels; and this compression, by preventing the elastic expansion of the heels, would be quite as hurtful as the nails. Had the hoof been shaped like a cone, expanding in all directions towards its base, there would have been a greater probability of some method being devised for accomplishing such an improvement in the system of shoeing, but had such been the shape of the hoof, the horse would have been in constant danger of overreaching the heels of his fore-feet with the toes of his hind-feet, in consequence of the heels extending backwards instead of forwards. The oblique direction of the hoof forwards from the coronet to the ground is a very necessary ordination, because the pressure upon it during progression is not perpendicular, but slanting; hence, the fibres of the horn taking the same oblique direction resist the shock produced by the weight of the body in a more equal degree. The animal is also much less liable to stumble than if the hoof stood perpendicular with the ground.

One of the radical evils arising from shoeing consists in confining the foot to a certain boundary allowed it by the shoe. This restraint prevents that elasticity of action which the heels would possess if the animal were unshod, and undoubtedly is the principal cause of corns, and running thrushes or diseased frogs.

In the natural state, the bottom of the hoof would undergo a certain degree of friction against the ground. This friction is essential to the health of the horny substance, by keeping up a proper circulation of the fluids by which it is nourished, and by thus distributing an equal portion of internal moisture to every part, it preserves that elasticity in its fibres without which it cannot possibly be in a healthy state. But when the horse is shod, all that part of the wall of the hoof which lies between the shoe and the clenches of the nails is so strongly compressed as to interrupt, if not totally

stop, the circulation of fluid through the horn. Hence all that part becomes in a manner dead and more brittle than the rest of the hoof, and very frequently breaks off in taking off the shoe. Each nail must also displace as much horn as its own bulk occupies, and on this account must contribute largely to the compression of the adjacent parts.

There is a very material difference between the English and French manner of driving the nails. The English blacksmith endeavours to drive the points as high up the wall as possible, so as to leave but a very small portion of the nail for the clench. This mode requires considerable dexterity to avoid touching the quick, and in order to escape this evil, the point of the nail is introduced as near as possible to the outward surface of the wall, and is then driven nearly in a parallel direction with its fibres above half-way up the foot. But as the foot increases in sensibility the nearer it approaches the coronet, it is evident that the nail by going so high before its point comes out at the side of the wall, must occasion some inconvenience to the animal in a greater or less degree, according to the thickness or thinness of the wall. This mode of driving the nails is considered as a mark of great skill in the blacksmith, but it is always attended with some danger, and especially during those periods of drunkenness in which that class too frequently indulge. The French blacksmiths are neither so neat nor so handy in their operations.

In England one man alone holds the foot and pares the sole, and nails on the shoe without any assistance whatever, whilst in France the same operation requires two, one man holding the foot, whilst the other affixes the shoe.

In driving the nails, the French blacksmiths pursue the opposite course to that adopted by the English, as they do not drive them near so high as the latter, but they introduce them much nearer to the edge of the sole, and drive them so obliquely outwards that the points come out at about three quarters of an inch above the shoe. By this method the nail has hold of a much thicker portion of horn, and is equally firm, if not firmer than if it were driven higher up, and is certainly less liable to produce inconvenience in the upper and more sensitive part of the foot.

To prepare the foot for the application of the shoe, the following plan should be pursued, provided the hoof be of its natural form and in a healthy state, viz. to pare the wall just sufficient to make it level; to pare the sole as much as will be necessary to remove the dead surface which endeavours to detach itself by scaling off spontaneously; the frog to be cleared of its ragged edges, the heels not to be scooped out nor notched in any way whatever. In performing this operation it has generally been customary to use the buttress, but even the most skilful hand has not that command over it as is necessary to regulate the exact quantity of surface that ought to be taken away. This difficulty may be obviated by the use of the drawing-knife, but the extent of its use should be limited to the rules just mentioned. The wall of the foot returns inwards from the heel to the point of the frog, forming what is termed, the bars or binders. These bars inclose the posterior points of the sole and completely separate them from the frog.

They constitute, in fact, the same division as takes place in the cloven foot of the ox and other animals of that tribe, except that the cleft does not extend above half-way through the foot. If suffered to grow down to the ground, as in their natural state, they take a considerable share of the weight of the body from the wall and frog, and they likewise afford great protection to that part of the foot, by being harder than the sole, and more capable of resisting injury. But blacksmiths in general appear to be totally ignorant of the use of the binders, hence they generally cut them away and even make a considerable notch between them and the heels, an operation which they term "*opening the heels,*" but which invariably produces ultimately the opposite effect.

The frog is a very necessary part, and was evidently intended by nature to bear some share of the pressure thrown upon the foot. It fills up a large hollow space between the heels which arises in that part from the concavity of the coffin-bone, and is a strong defence to the tendon of the foot at a part where it is inevitably exposed to much danger of injury from hard or sharp substances.

In its sound healthy state it is generally almost as hard as the sole, and assumes the form of a wedge. It thereby gives stability to the foot, and serves as a basis to the flexor tendon of the legs, and assists the elasticity of the posterior parts of the hoof. But the common method of paring it away even to the quick frustrates completely all these intentions of nature, and being also kept very high above the ground by thick heeled shoes, it is deprived of that degree of pressure which it was intended to bear, and becomes soft from the accumulation of the natural fluid which it secretes in great abundance, from the fatty substance which lies immediately above it.

This superabundant accumulation of fluid at length makes its escape through the fissure of the frog, and acquires, by exposure to the atmosphere, a fetid smell and an acrimonious quality sufficient to erode the adjacent parts.

In this state the frog becomes so sore and tender as not to endure pressure without a very painful sensation. But the mischief does not terminate there, for as the frog very probably contributes some share in keeping the heels at a proper distance from each other, its means of accomplishing that object must naturally be reduced in proportion as its size is diminished. A diseased state of the frog may however occur even in a state of nature, as appears sometimes in the feet of colts at grass and which have never been shod. But this rarely happens, except where the wall of the hoof is exceedingly strong, thereby preventing the heels from being sufficiently worn down, so as to bring the frog into contact with the earth. Soft and wet pastures likewise contribute to produce this diseased state. Previously to shoeing, the ragged edges of the frog may be cut away, but no greater quantity of it should be removed upon any pretence whatever. In order to save trouble, it is customary with blacksmiths to apply the shoe hot, and to burn down the hoof until it fits the shoe. This system is very pernicious, and should never be suffered by any one who sets any value on his horse's feet, for it causes a great evaporation of moisture, and consequently renders the horn dry and brittle and less

capable of holding the nails in their respective situations. The shoe, for a perfect formed hoof, should not be above three quarters of an inch broad. It should be of the same thickness throughout, both at toe and heel, whereby it will the nearer approach to the natural position of the foot upon the ground. It was the practice for some time, at the Veterinary College, to make the heels of the shoe extremely thin, with the view of bringing the frog to the ground, and thereby to give it that degree of pressure which is necessary to its healthy state. But although the intention was good, the means were founded on a very erroneous principle, as must be self-evident on a moment's consideration. If the toe of the shoe be made double or treble the thickness of the heel, it must have the effect of throwing the foot completely out of its natural position, by raising the toe and lowering the heel. The consequence of this unnatural position must be to increase the angle of the pastern joint, and to keep the tendons more upon the stretch, and thereby to produce great fatigue and inconvenience to the muscles of the leg.

Attempts were made to obviate this evil, by paring the toe of the hoof to a greater degree, and by leaving the heels untouched, but this plan was equally fruitless, because in that case, the heels, by being permitted to grow to such a height still kept the frog from the ground as much as would have been the case with a thicker-heeled shoe. Another expedient to produce pressure upon the frog, was also attempted at the college, and with no better success. This was to be effected by fixing a piece of iron, of the same shape as the frog, immediately under it, and by compelling the horse to stand upon it, such a degree of pressure was to be kept up as was judged necessary for the purpose intended. But it seems not to have been considered by the projector, that the casual and moderate pressure which the frog receives in a state of nature when the foot is unshod, must be very different to that partial and unremitted pressure which must arise from the frog being obliged to bear on a hard and inelastic substance, especially when it was so thick and prominent as to take off the weight of the body from almost every other part of the foot. The consequence of the experiment was such as might naturally have been anticipated, from the sudden and unqualified exposure of a part rendered tender, by disease, to such a painful process, namely, the production of considerable inflammation in that part of the foot. Experiments in all matters relative to the veterinary art are not only justifiable but praise-worthy, but they should never be undertaken without the most mature and ample reflection, and should never be held out to the public until their success has been well established by a sufficient trial, because every failure that attends any new system or theory, and especially in regard to those which emanate from the fountain head, the college, has the adverse effect of bringing not only that institution, but the science in general, into doubt and disrepute.

But to return to the subject. The shoe should be perfectly flat and of an equal thickness from toe to heel. It is customary with English blacksmiths to make a furrow all round the under surface of the shoe, for the purpose of admitting the heads of the

nails to a level with it. This is called "*fullering*." The French blacksmiths do not adopt this plan, but leave the surface of the shoe quite smooth and equal, and instead of the "*fuller*," they make holes with a punch sufficiently large to bury the head of the nail, and this is certainly a better practice than the other, because the "*fuller*" leaves two sides of the head of the nail exposed to any hard substance that the foot may strike against in going, and the nail is thereby more liable to be drawn than when its head is equally defended all round. It also leaves a greater substance of iron to the shoe, and consequently prevents its being worn away so rapidly as in the other instance. The shoe has not so neat an appearance, but that is a matter of little consequence when set in the scale against the advantages of the French method.

The foregoing directions being laid down principally for shoeing a good foot, it will be necessary to point out what deviations are required in regard to the various alterations of form which are produced by a diseased state of the hoof. The sole acquires two very opposite alterations in its form and appearance from certain causes operating on the hoof. The one is a too great concavity or hollowness, the other a too great convexity or fullness of its surface.

The first generally takes place where the wall of the hoof is remarkably strong and dry. In this case the heels, by being protected from friction by the shoe, grow to an immoderate height, and by their compression, force up the horny sole against the fleshy sole which lies immediately above it, and this produces a greater or less degree of pain, according to the quality of pressure.

The French veterinary writers call this disease an encastelated hoof. This disease it is obvious must be increased greatly by the heat and dryness of the litter in the stable. It is also generally accompanied by corns, and running thrushes or diseased frogs, and a very evident contraction in the heels. This contraction, however, never takes place suddenly, as the internal parts of the foot will resist it as long as possible, but the continued pressure of the quarters will ultimately produce an absorption of the sides of the coffin-bone, which is obliged in this manner to adapt itself to the diminished capacity of the hoof. In preparing a foot of this description for shoeing, the heels should be pared as low as possible, and the quarters rasped, and the same shoe may be used as has been recommended for the good foot.

On the other hand, when the sole is flat or convex, a very different shoe must be applied. This alteration in the sole is sometimes produced by inflammation, or what is called fever in the feet, and very frequently by a continued series of bad shoeing. When it is the result of inflammation, the horse is said to be foundered and the coffin-bones sunk. This disease never admits of a cure. But when the convexity of the sole is brought on by bad shoeing only, some relief may be obtained by adopting a better system. As it arises in a great degree from partial pressure on the wall of the hoof by hollow webbed shoes, it requires a strict attention to their proper construction in that respect. In feet of this description, the wall is generally thin and weak. In this case the heels grow very little, comparatively with

the rest of the foot, the weight of the body being sufficient to prevent their increase and to throw the new horny matter more profusely to the toe. Here it is evident that the heels should never be pared, and that the use of the drawing-knife should be confined solely to the toe, which should be kept as short as possible. The frogs in feet of this description are generally large, hard, and sound, owing to the greater degree of pressure which the lowness of the heels occasions.

The sole of the convex hoof being more exposed than it would be in its natural state, consequently requires a greater defence. The shoe, therefore, must be broader, and its internal surface must correspond in some measure with the convexity of the sole, but not more than is absolutely necessary to admit a picker between them. The surface of the shoe next the ground may be flat, and this may be effected by bevelling the shoe from the outer edge of the web to the inward edge, so as to leave a sufficient space between the shoe and the sole. The caution against applying a hot shoe is particularly necessary to be attended to in the present case. It is the practice with blacksmiths to use a bar shoe for feet of this description. This plan palliates the evil for a time, but the shoe is generally so badly formed, by being made hollow at the heels, that the foot is placed, as it were, in a bowl, and the pressure on the heels is still kept up, although in a different direction, and the disease is thereby ultimately increased. A bar-shoe should never be used except in very bad cases of corns, where it is necessary to eradicate them by cutting away the heel. There is, however, a great temptation to blacksmiths to recommend them; namely, the opportunity of charging a greater sum than they do for the common shoe.

Various descriptions of shoes have been invented for the purpose both of curing and preventing contraction of the feet. Amongst these was one recommended at the college, and for which the professor obtained a patent. This shoe, which was intended to prevent contraction of the heels, differs in nothing from the common shoe except in having a clip at the inner edge of each heel which turns over the binder and prevents its moving inwards towards the frog. But the confinement occasioned by this clip over the binders totally prevents the elastic action of the heels, and it is certain that as much pain and inconvenience may be occasioned to the animal by keeping the heels constantly on the stretch outwards as by compressing them inwards towards each other. Indeed, all attempts to produce any sudden change in the form of the hoof will be found totally useless, if not injurious. The disease comes on gradually, the remedy therefore should be gradual, as the texture of the horn is too firm and tenacious to yield hastily to artificial impressions. Horses which turn their feet either inwards or outwards are very liable to strike the fetlock joint of the opposite leg in going. The usual remedy for this defect is to make the shoe on the inside narrower than the foot. It is also customary to attempt to place the foot in a strait position, by making the shoe thicker on the side opposite to that towards which the toe may happen to incline. But this practice must in some degree distress the pastern joints by forcing them out of their usual direction. When adopted in regard to a colt it may be found useful, as his legs and feet will grow according to the inclination

given them by the shoe, but in an aged horse those parts are become too fixed and rigid to be susceptible of any alteration.

The shoe, for any description of foot, should not be longer than the heels, as it endangers the horse in his going by overreaching the heel of his fore-foot with the toe of his hind-foot, and the consequence is, that if the shoe is not forced off, the feet become locked together, and the animal falls upon his head.

In regard to waggon-horses, the common method of shoeing them is detrimental in the highest degree. The shoe is not only enormously heavy, but is made so broad in the web as nearly to cover the whole of the sole. The surface next the ground is generally round, or convex, and the bad result arising from this form is sufficiently obvious for the following reasons; for the stones of the pavement being round and convex also on their surfaces, but a very small portion of the shoe can touch the ground. Hence the animal cannot stand so firm and steady as he should do, nor can he have sufficient hold for his feet when he is exerting his strength in drawing a heavy load. He also slips about continually, and is thereby deprived of the means of employing his strength to the best advantage.

This extraordinary weight of iron is therefore not only perfectly useless, but is also the source of great inconvenience to the animal, and if a narrow-webbed-shoe is useful in any case, it is particularly so to the London cart-horse, for it must give his feet a greater hold of the ground and thereby increase his stability. It is pretended that the great breadth of shoe just alluded to is necessary to keep it on the foot, and to prevent it from being twisted. But so far from increasing the firmness of its attachment to the hoof, it must be more likely to loosen it, by the great and unnecessary weight of iron of which it consists, whilst the narrow-webbed-shoe, by sitting closer to the hoof, and having no hollow space between its own surface and that of the foot, must evidently be less liable to be bent than one of the description just mentioned.

Notwithstanding the foregoing observations, it must be admitted that the practice of shoeing has been pretty generally improved throughout the country, but it is evident that much still remains to be done before a thorough reformation can be accomplished. With a view to effect so desirable an object, country-gentlemen have taken the trouble to study the subject, to enable them not only to ascertain whether their horses are well or ill-shod, but also to give a certain degree of instruction to the blacksmiths in their neighbourhood. And in order to elucidate their precepts by ocular demonstration, they have procured shoes made in London, either at the Veterinary College, or at the forge of some eminent practitioner. But it has sometimes occurred unfortunately that they have confined themselves to patterns for a good foot, without making any provision for those variations of form produced by bad shoeing or by disease; and from this circumstance has arisen much inconvenience, if not the total failure of their laudable intentions. For if a gentleman provides himself with a pattern shoe for a *good foot only*, and insists upon having a similar shoe applied to each of his own horses, without taking into consideration the state or form of the foot, the most probable result will be lameness in a greater or less degree.

On such an occasion as this the village blacksmith has experience enough to know beforehand, that a shoe for a good foot cannot be fixed on to a pumied or convex foot without causing lameness. He, therefore, very reasonably remonstrates against the use of it in that particular instance, but owing to the little credit he has with his employer for any knowledge whatsoever on the subject, his remonstrance is seldom or ever attended to, and the consequence is, that his prediction as to the lameness is verified, and the owner of the horse not only abandons all the information he had before acquired, but condemns the whole London system of shoeing and the Veterinary College altogether.

The period at which the foot of the horse receives the greatest injury is from the first time he is shod until he is six years old. For supposing that he is shod at three years old, the hoof must be for three years under the constant confinement of the shoe, a circumstance which must evidently obstruct its growth in a relative proportion with the rest of the animal.

The custom adopted in China to keep the feet of their women within a certain diminutive and unnatural scale, is conducted much upon the same principle as that just alluded to, and the consequences are quite similar, namely, a hobbling and imperfect gait, which no subsequent means can remedy or overcome.

It is therefore at the time of first shoeing the colt that the greatest attention is requisite. Hence particular care should be taken that the shoe be the *full size* of the foot, as well as to put on new ones at least once a month. In this case the pattern-shoe for a good foot may be closely adhered to, in spite of any objections on the part of the blacksmith, and without any danger of an unfavourable result. But the most important object to be borne in mind is the treatment of the foot at the time of shoeing, and one inflexible rule should be strictly adhered to, viz. never to permit the blacksmith to shape the foot to the shoe, but to oblige him to shape the shoe to the foot, nor to suffer him to cut away more of the hoof than would naturally be worn away were the animal in a state of nature.

DISEASES OF THE FEET.

The most general disease by which the foot of the horse is affected is that of contraction, especially of the heels. This alteration of the form and size of the hoof is, in a great measure, the offspring of bad shoeing. Other circumstances, however, may tend to produce it, for instance, a natural propensity to hardness and dryness in the horn, and which must be greatly aggravated by standing on dry litter in the stable, or it may

sometimes occur by the horse's not pressing on the foot in consequence of lameness in some other part of the leg.

The necessity of detecting the propensity to this disease in its infancy must be sufficiently obvious when it is a certain fact, that if the contraction has existed any great length of time a perfect cure is not to be effected. The contraction never takes place all at once, because the parts which are contained within the hoof do not yield immediately to the compression from without; but when this compression is continued, an absorption of the coffin-bone begins and goes on until it in some degree adapts itself to the diminished capacity of the hoot.

As the great strength and thickness of the wall of the hoof is one of the primary causes of the contraction, it must be evident that it is a very injudicious practice to pare the sole too thin, the consequence of which is the lessening that degree of resistance which the sole affords, and which is necessary to keep up an equal and uniform action in every part of the foot. The disposition to contraction in the heels must be greatly increased by the use of hollow-webbed shoes, which do not sit flat at the heels, and in this case the frog, for want of pressure upon the ground, will become diseased, and by its consequent soreness will render the horse very unsafe in his going when he happens to tread upon any hard projecting substance in the road. Feet of this description are also generally affected with corns, owing to the heels being bound both by the strength of the walls as well as by the bad form of the shoe. When the contraction exists to a great degree, the sole is sometime pressed against so strongly at its edges by the quarters, as to ascend against the fleshy part of the foot which lies immediately above it, and thereby to create great pain and inconvenience to the animal.

Many attempts have been made to expand the hoof to its original dimensions, and as the contraction was supposed to have been occasioned by the compression of the circular fibres of the horn, some practitioners have attempted to obviate this evil by dividing those fibres cross-ways, by scoring deep furrows almost to the quick, from the coronet to the bottom of the wall. Others, with the view of expanding the heels, have applied a shoe with a hinge at the toe, and a repelling screw at the heels, for the purpose of forcing the heels outward. But if this shoe be nailed on at the toe as well as at the heels, it is clear that its expansion must be stopped at the first nail from the hinge, and that its principal action will therefore be against the front of the hoof and not against the heels. Independently of this circumstance, such a mode of attempting to expand the heels must produce very bad consequences, because the external parts of the foot have naturally a close adhesion to the internal parts, and therefore if the horn of the hoof is pulled outwards in a lateral direction, the internal substance cannot follow it, and consequently all the laminated fibres being kept on the stretch, great pain and inflammation must ensue.

But it happens in nine cases out of ten, in contracted hoofs, that the internal parts of the foot have undergone some irrevocable alteration in their structure; such as an anchylosis, or union between the lower pastern-bone, and the coffin-bone, so that the use of the joint is completely destroyed.

Or it may happen that the cartilages or gristly substance which is placed within the coronet, just over the quarters, may have become ossified or converted into bone, so as to have lost that elastic action which naturally belongs to it.

In either of these cases it is evident, that even if it were possible to expand the hoof by any of the artificial methods before-mentioned, such an expansion would be of no service whatever, because it could not restore the internal parts to their original shape and properties.

Another practice resorted to by the common farriers in cases of contracted feet is to draw the sole, that is, to tear off the horny sole from the fleshy sole. But the extreme barbarity of this practice has nothing to defend it whatsoever, for so far from its proving the means of resisting the contraction of the walls, it serves but to increase it by removing, (until the growth of the new sole is completed,) one of the chief obstacles to such a tendency. The disposition to contraction in the heels must be greatly increased from the want of sufficient pressure upon them whilst the horse is in the stable, owing to the pavement of the stall being almost universally formed with a declivity backwards. From the horse being thus obliged to stand constantly up-hill, the weight of the body is thrown principally upon the toe, in which case the heels bearing little or no share in the pressure must be more subject to contraction.

As the want of sufficient moisture is undoubtedly one cause of this troublesome disease in the feet, the evil may in some degree be palliated by tying wet woollen rags loosely over the coronet, and keeping them wet by frequently dipping them in water during the day, but the use of the sponge-boot will answer the purpose equally well, and these may be procured at most of the sadlers' shops in the kingdom.

But the most effectual way of stopping the progress of contraction in the hoof, is to turn the horse to grass or to straw-yard perfectly barefoot both in his fore and hind feet. The common practice is to take off the hind shoes only, or to shoe the fore-feet with tips, from the apprehension of the hoofs being broken if not protected in some way or other. The folly of this practice is self-evident, because one of the principal sources of relief to a contracted hoof, must consist in leaving it free and unconfined on its surface so as to undergo a gradual expansion, but if the hoof is still fettered by a shoe, it is obvious that no expansion can take place.

It is true that when the animal is turned out barefoot, the hoof generally chips off as high as the clenches of the old nail-holes, because that part of the horn has become dead and brittle, by the pressure it has undergone between the shoe and the clenches; but the hoof is constantly growing downwards, and consequently these broken parts will disappear in a short space of time, especially as the hoof increases much faster when the animal is out in the field, owing to the moisture as well as the friction which it receives from the earth. Contracted feet are very frequently attended with corns, which in the horse are very different from those in the human being, the latter being an increased hardness of the part affected, whereas, in the horse it is attended with an unnatural softness so as to admit blood be

tween the horny fibres of the sole and to give it a red appearance, at the same time rendering that part of the foot very tender and painful. Here also the advantage of the foot's being unshod is very great, as it is the only certain means of eradicating the disease; for the equal and regular pressure on every part of the foot, although it may increase the pain at first, ultimately hardens the part where the corn appeared, and brings it to the original state of the rest of the hoof.

Previously to turning the horse to grass it is advisable to blister him once or twice round the coronet. This may be done with the following blister:—

Viz. Cantharides finely powdered, two drachms; sweet oil sufficient to make it the consistence of treacle.

The hair may be cut close off all round the coronet, and the blister rubbed well on for ten minutes at least. The horse's head must be tied to the rack for twenty-four hours after the application of the blister, to prevent him from rubbing the part with his mouth, and the coronet may be dressed on the following and on every third day, with hogs'-lard until he is turned out, which should not take place until he has been prepared for it by leaving off his cloathing by degrees and not currying his hide. In regard to blistering, a very erroneous opinion exists that it can hardly be too violent in its operation. Hence corrosive sublimate, euphorbium, and oil of origanum, are generally added to the cantharides in order to produce a stronger effect. But the consequence of these strong blisters is almost always to blemish the part, leaving the skin ever after as hard and insensible as horn. The object of a blister should be simply to bring on an increased action in the vessels, and this is best accomplished by the mild composition before recommended, and which never occasions a blemish, even if the horse should happen to rub it; but the violent blister just alluded to goes beyond the mere effect of increasing the action of the vessels, for it absolutely destroys them altogether, and consequently defeats the object intended.

The hoof, before turning out, should be pared as thin as possible, especially at the heels; the toe should be shortened and the quarters rasped to a considerable degree. It will be needless to observe that soft and moist pastures are most conducive to restoring the natural pliancy of the horn.

The opposite disease to the one just treated on, is the pumied or convex state of the sole. This is very frequently produced by inflammation, called fever in the feet, but more frequently from a natural thinness in the wall of the hoof, as well as by bad shoeing. When the disease has occurred in consequence of inflammation, the coffin-bones are said to be sunk. In this state a cure is not to be expected, and therefore all attempts to effect it will be but a waste of time and trouble. But in those instances where the disease has arisen from bad shoeing, a partial, if not a complete restoration may be accomplished.

In the pumied or convex sole, the walls of the hoof are generally so thin and weak that the weight of the body pressing upon them is alone suflicient to prevent their increase, so that the new horny matter is forced forwards towards the toe, which is generally of an immoderate length.

The front of the foot also, instead of preserving a strait uniform line to the ground, sinks in, more or less, in the middle, and occasions a series of horny rings or projections one over the other. The heels, as has been before observed, never increase in height in consequence of their weakness; hence the sole descends, and the pressure falls upon it instead of the heels. When the foot has arrived at this state, the shoe is made hollow, or convex, in order to sit clear of the sole, but the consequence of this form in the shoe is to increase the pressure on the quarters, and to increase the disease. All attempts to restore a pumied foot will be useless without turning the horse to grass *barefoot,* in which state the pressure being thrown entirely on the sole and frog, the quarters are left at liberty to grow down to their original depth. In this case the coronets should also be blistered with the mild blister, and the toe cut as short as possible, but the heels should never be touched. The shortening of the toe should be repeated at least once a month, and the horse should remain at grass barefoot at least six months to produce any permanent benefit.

THE SAND-CRACK

is a partial division of the wall of the hoof, beginning at the coronet, and generally extending half-way down the wall. When it is suffered to increase to any great extent it produces lameness, and requires a considerable length of time to be eradicated. As that part of the hoof where the crack or fissure shews itself is dead and incapable of uniting at the edges, it must be cut away with a drawing-knife down to the quick, and a pledget of tow dipped in tar may be applied and bound on to the hoof by tape: a blister round the coronet will also be beneficial, and if the crack runs down to the bottom of the foot, a bar-shoe should be nailed on so as to take the pressure from the heel and thereby prevent the quarter from springing. An old and inveterate sand-crack sometimes terminates in a quittor, or ulcer in the coronet of the hoof, and which, if neglected, occasions a carious or diseased state of the cartilages and bones of the foot. A quittor may also arise from treads or overreaches, or from the foot being pricked in shoeing, and the matter forcing itself through the coronet, that being the part where it meets with the least resistance

When, however, the ulcer has arrived at this state, the original cause will be immaterial, as the treatment must be the same, namely, to get to the bottom of the sinus, the depth and direction of which may be ascertained by the probe. As soon as these points are ascertained, the best mode of treatment is to introduce a tent prepared in the following manner.—Take a small piece of thin India paper, spread some butter or lard over it, then sprinkle about ten grains of corrosive sublimate, finely powdered, over the surface of the paper, and roll it up into as thin a roll as possible, and introduce it into the quittor as far as it will go. The horse's head should then be tied up for a few hours to prevent him from rubbing it with his mouth, and the tent should be left within the ulcer for three or four days, at the expiration of which time it may be taken out, and the diseased part will follow it; after which it becomes a simple wound, and requires nothing more than to be kept clean and defended from the air by a bandage round it. A quittor frequently leaves a deformity in

the growth of the roof, one side of the indented part being higher than the other. This is called a false quarter. It is of little consequence, and is very similar to the irregularity which takes place in the human nail after it has received any material injury.

When the frog becomes diseased, it is called a running thrush. This may proceed from the frog wanting pressure, owing to its being kept off the ground, or from a disposition to inflammation in the foot increased by standing on stale litter. When the frog is not sufficiently pressed upon, it becomes soft from the accumulation of the fluid which it naturally secretes in great abundance from the fatty substance which lies immediately under the aponcurosis of the flexor tendon of the foot. This accumulation of fluid at length makes its escape through the cleft of the frog and heels, and becomes fetid by exposure to the atmosphere, and so acrimonious as to destroy the adjacent parts. In this state the frog becomes so sore and tender as not to endure pressure without a painful sensation, and the horse consequently will be more or less unsafe in his going.

The discharge may be stopped by astringent applications, but it is not prudent to check it too suddenly, as such a course sometimes produces general inflammation in the foot, attended with lameness, and, in this case, the discharge generally breaks out again with redoubled violence. Colts at grass are sometimes subject to running thrushes. This happens where the walls of the hoof are exceedingly strong in which case the heels do not wear away sufficiently to let the frog touch the ground. Soft and wet pastures also contribute to this disease. To obviate this inconvenience, the heels should be pared down very frequently. The frog should be cleared of all the ragged and diseased parts, and after being well washed with soft-soap and warm water, it may be dressed either with spirits of turpentine or verdigrease dissolved in water.

When the disease has existed so long as to have insinuated itself between the horny and fleshy soles of the foot, it is then called a canker, and must be treated in the following manner, namely, first to cut away all that part of the hoof which is detached from the parts within, and to dress the diseased surface with butter of antimony, upon which should be laid a pledget of dry tow, covered with powdered lime; and this dressing should be repeated every day until the surface is cleared of the foul stinking fungus, and puts on a red healthy appearance, after which it may be treated as a common wound, dressing it simply with common digestive ointment, sprinkled with verdigrease.

Pressure also will be useful in preventing the granulations of the new flesh from rising too luxuriantly, and which must otherwise be kept under by caustic, a practice which puts nature to a great deal of trouble in producing a new surface. During the process of curing any of the above-mentioned diseases of the feet, it is advisable to give some purging medicine, which tends to accelerate the healing of the ulcers, by increasing the action of the absorbent vessels. The following ball may be given with safety, viz.

Barbadoes aloes . . . 8 drachms
Castile soap . . . . 2 drachms

mixed into a ball with syrup.

Previous to taking this ball, the horse should be prepared by bran-mashes on the preceding day, and these mashes may be

given cold, as a more likely mode of inducing him to eat them. Indeed, the practice of giving mashes too hot is very injudicious, as the horse may happen to scald his mouth, and in that case he generally refuses to touch one ever after.

It is also very essential that the horse should be thoroughly cleaned and dressed during his lameness, as it is too often the practice to neglect this salutary operation, from the idea that it is unnecessary because he does not work.

THE GREASE

Is a disease of the lower end of the legs, and generally occupying the hollow, or the back part of the fetlock-joint. The nature of the discharge is very similar to that of the running thrush and the canker. It generally begins by a swelling of the limb, produced by the want of exercise, or from a want of a proper action in the absorbent vessels. It more generally attacks cart-horses, (especially those of a large heavy breed, with round fleshy legs,) than blood-horses. The most prevalent source of this disease is debility, and this may arise from very opposite causes. The healthy state of all animals is constituted by a due and vigorous circulation of the blood, and a regularity in the natural evacuations of the body. Whatever disturbs any of these functions will produce debility. In a full plethoric habit the blood-vessels become oppressed by being overloaded, and are thereby rendered incapable of performing their office. Hence debility ensues, and the legs being the part most remote from the heart, which is the centre of the circulation, become swelled for want of the accustomed absorption. On the other hand the circulation of the blood may also be rendered feeble from the animal being weak and emaciated either from immoderate labour, or from a want of a sufficient quantity of food.

The disposition to this disease is also greatly increased at particular seasons of the year, such as the spring and autumn, or by want of regular exercise and thorough cleaning. The pavement of the stalls of the stable being on an ascent, and obliging the horse to stand on the stretch, is another very probable cause of the grease.

In the healthy state of the animal, the insensible perspiration is carried on in a regular manner, as may be ascertained by the glossy appearance of his coat, as well as by the softness and pliability of the skin. On the contrary, when this natural evacuation is suspended by disease, the coat is hard and dry, and the skin almost immoveable.

There are many circumstances which may cause a suspension of the insensible perspiration, but the principal one arises from a sudden change from heat to cold. This may be produced by the horse standing in the open air whilst in a sweat from exercise, or it may arise from washing him all over with cold water whilst in that state, or from the still more abominable custom of taking him into a brook up to his belly, and riding him round for a considerable length of time, so that he has to pass through a fresh succession of cold water every time he goes round. This practice is very common amongst post-boys, and horse-keepers to stage-coaches, and very frequently brings on the most violent inflammatory attacks on the lungs or no the intestines, and every coach-proprietor and inn-keeper who suffers this practice to

be carried on is but little aware of the risk he runs; or of the injury which the animal sustains even if he survives it. As this class of stablemen are all the creatures of habit, it is in vain to attempt to reason with them on the impropriety of their conduct; it must remain, therefore, with the masters to force them to relinquish so hurtful a custom.

Although the animal may escape any violent and dangerous disease, yet the probability is very great that he will be attacked either by the grease or the farcy, or perhaps by both. In addition to the foregoing cause of the grease, it may be asserted, with great truth, that the practice of trimming the hair close off the horse's heels contributes greatly to the production of that disease.

It is a general, but a very erroneous opinion, that the hair harbours dirt, and consequently promotes the disorder. But the contrary is the fact. From the hair being longer at the heels than in any other part of the leg, it is clear that nature had some particular reason for that difference, and that reason is, on a moment's consideration, self-obvious; namely, for the defence of a part which is more exposed to friction than the rest of the limb. This hair, by lying close to the skin, shields it from the action of the dirt, which, when the heels are trimmed close, always insinuates itself, and by rubbing the skin irritates it and inflames it to a considerable degree; for when the hair is cut close, that which is left does not lie smooth, but stands out endways, like a brush, and thus easily admits mud, and clay, and every other kind of dirt. The skin secretes a natural oily fluid, for the purpose of keeping it soft and flexible, but when it is thus exposed by trimming off the hair, this fluid is rubbed off by friction, and the skin becoming hard and dry, soon cracks, and the grease ensues.

That this hair is a protection to the heels may be easily ascertained, by laying it aside and examining the surface of the skin, which in that case will be found clean and dry, even after travelling the whole of the day through the dirtiest roads. The thorough-bred horse it is true has but little hair on his heels, but it should be remembered, that he is originally a native of a hot climate, where the soil is light and sandy, and free from moisture.

Horse-dealers know so well the utility of leaving the hair on the heels of horses that work hard, that they never trim their own hacknies which they ride to fairs; and coach-masters and inn-keepers would find it beneficial to adopt the same plan.

The Grease, as has been before observed, generally begins with a swelling of the limb, and it happens more frequently in the hinder than in the fore-leg. If the inflammation is not speedily subdued, the swelling increases, and the skin cracks, and a serous discharge ensues. In this state the limb becomes so stiff and sore that the horse will not lie down from the pain it gives him to bend his leg, and the consequence is, that the swelling increases, and with it the disease.

When the attack is not very violent, it may be sufficient to give such medicines internally as will increase the insensible perspiration, and the discharge by urine. For this purpose the following ball may be given every other night for four or five nights:—

Emetic Tartar	2 drachms
Venice Turpentine	½ ounce.

Liquorice-powder sufficient to make the ball of a proper size—the whole to be mixed thoroughly together.

The heels may be dressed with the following lotion after being fomented with warm-wate, viz.

Golard's Extract,	1 drachm
White Vitriol,	1 drachm.
Water,	1 quart,

Mixed.

If the disease has acquired a considerable degree of virulence, purges must be given, and the following ball will be found well adapted for that purpose:

Aloes Barbadoes	9 drachms.
Ginger - - -	1 drachm.

The horse to have bran-mashes on the day previous to taking the ball, and to be continued with warm water to drink during its operation, to be cloathed warm and to have walking exercise; should the cracks or ulcers be very foul they may be poulticed with a turnip poultice, or one made with oat-meal and beer grounds, and they may also be dressed with the following lotion: viz.

Blue Vitriol, powdered, 1 ounce,

Dissolved in a pint of water; or the mel Egyptiacum which is prepared and sold at the druggists' shops in general. It is necessary that the horse should be well cleaned every day, and it will be beneficial to him to be turned into a loose box where he may move at pleasure, and where he will be more inclined to lie down than when confined in a stall.

ON THE STABLE.

The principal cause of most of the diseases to which the horse is subject, may be attributed to the custom of keeping him in the stable, but as that custom is conducive to convenience, and as the animal is thereby, in some respects, better prepared for the purposes of labour, it is thought necessary to adopt that system, however unnatural, and it only remains to consider what are the best means of obviating those evils which are inseparably attached to it.

In the first place, it is evident that the horse, in this domesticated state, undergoes a great change in his natural habits, both in regard to his food and his lodging, and, until nature in some measure adapts herself to this change, he must experience a greater or less derangement in the natural functions of his body. Hence it is that young horses are more affected by such an alteration in their habits than old ones, and consequently they are more subject to swelled legs, grease, and inflammatory attacks on the eyes, all of which diseases arise principally from that costiveness which is the result of feeding wholly upon dry food, as well as from the want of that regular and constant exercise of which he is deprived by being confined to a stall, perhaps, for eighteen hours out of the twenty-four. Another cause also of disease is the

want of a sufficient quantity of fresh air in the stable. In regard to the extraordinary labour which a certain class of horses undergo in this country, it is no less singular than disgraceful to our national character, that the common feelings of humanity should not induce us to lessen those sufferings which are imposed on a mute and patient animal, either from the thirst of gain, or from the inconsiderate pursuits of luxury and pleasure.

A certain portion of labour is essential to the health of all animal bodies, but when that labour is carried beyond a certain extent, debility must ensue, and the machine, by excessive use, must be worn out much sooner than it would be in the regular course of nature. But as the animal becomes the property of some individual from the moment he enters on his existence, there is unfortunately no law to prevent the proprietor from using him according to the dictates of his own caprice or inhumanity, and the only check that remains against this evil, is the consideration of self-interest, which sometimes interposes by pointing out the risk of losing the animal altogether.

The first point to be attended to in regard to the stable, is its construction, for upon this much of the welfare of the horse will depend. The principal defects in most stables consist in the want of sufficient space, particularly in regard to the height of the cieling, in the deficiency of light, the narrowness of the stalls, the declivity of the pavement, and the confinement of the vapour or steam arising from the bodies of the animals. The want of ventilation in apartments wherein a multitude of human beings are crowded together, such as manufactories, hospitals, and workhouses, is generally productive of disease, or at least it prevents that healthy and vigorous state which is visible in those whose occupations oblige them to pass most of their time in the open air.

The effluvia of animal bodies, like all the other excretions, is constantly running into a putrifactive state, and this must point out very forcibly the necessity of a proper degree of ventilation in stables, especially when it is considered that the dung and urine add greatly to the evil. But the desire of giving a horse a fine coat in winter induces those who have the care of him to keep the stable as hot as possible, by excluding to the utmost of their power the external air. As far as appearance goes this custom certainly has the desired effect; but the consequences are that the animal is rendered more delicate, and more liable to catch cold whenever he happens to stand in a colder situation than that to which he is accustomed. Stables that are kept hot and not sufficiently ventilated are always extremely damp. This arises from the breath and the vapour of the horse's body becoming condensed on the surface of the walls, and running down them in a liquid state.

When this moisture has remained for a certain length of time it acquires an unpleasant and sickly smell, and which must be peculiarly offensive to an animal destined in a state of nature to be surrounded with pure and wholesome air. In a state of health a certain evaporation from the surface of the body is constantly going on. This is called the insensible perspiration. This vapour is absorbed by the surrounding atmosphere, and the quickness or slowness of the absorption will be in proportion to the change which the air undergoes by circulation

Thus if the horse be exposed to the open air the evaporation is much more rapid than when he is confined in the stable. This evaporation unloads the vessels of the skin, invigorates the circulation of the blood, and gives a general tone of health and spirit to the whole animal machine. Upon this ground, therefore, the necessity of attending to the proper means of ventilation in the construction of the stable must be sufficiently evident.

The simplest and best mode of effecting this desirable object, is by carrying a tube of six inches diameter from the centre of the cieling through the roof.

The next circumstance of importance is to have a proper degree of light. In the generality of stables the windows are very small and some are without any whatever.

The healthy and vigorous state of the various faculties with which the animal is furnished depends greatly on their being kept in a certain degree of action, hence the stimulus of light is necessary to strengthen the eye, and to preserve vision. But when the horse is confined for the major part of the day in a dark stable, the faculty of sight will be considerably weakened, as may be perceived by his winking his eyelids, and from being unable to bear a sudden increase of light on being led out of the stable.

Light has a very extraordinary influence upon vegetable and animal bodies, and it has been proved by experiment, that when deprived of its presence they are neither so perfect in their colours nor so strong and healthy in their constitutions. This is strikingly manifest in the difference between the birds of the northern regions and those of the south; the plumage of the latter being much more brilliant. It is a curious fact, that blind horses are seldom so fine and glossy in their coats as others. Whether this circumstance has any connection with the one just alluded to must of course be matter of conjecture only.

The next object to be attended to is, that the stalls shall be of a proper width. The body of a horse of fifteen hands height is generally about five feet long. The stall therefore should be six feet wide to allow him sufficient room to turn round in, especially as the back-bone of a horse possesses but little flexibility. It is certain that many horses have been irrecoverably injured in their backs from the want of a proper attention to this circumstance, as well as from the hasty and inconsiderate way in which grooms require them to turn. The length of the stall should be nine feet in order to prevent horses from kicking, and the height should be such as to hinder them from smelling or biting each other.

The custom of paving the stall with a descent backwards is productive of great inconvenience to the animal. This is done for the purpose of letting the urine run off from the litter. Dealers also adopt it to shew their horses to advantage, as it makes them look larger and higher in their forehands. But, by being obliged to stand constantly up-hill he becomes so much fatigued that he is half tired before he commences his daily labour. For the ligaments of his joints and the flexor muscles of his legs are kept perpetually on the stretch. The pain and inconvenience arising from this position may be easily ascertained by any one standing a short time with his toes higher than his heels, in which case the calves of his legs will

be so much affected as to satisfy him of the truth of this observation. Hence when the horse is not eating, he always endeavours to find a level standing, either by placing himself across the stall, or by retreating as far back as his halter will allow, so that his hind legs may reach the opposite side of the channel. He is also obliged to balance himself by standing with his fore-legs farther under his body, which gives him a bad habit of going, and also by removing the pressure from the heels to the toes, tends to increase that contraction to which the feet, in the stable, are always more or less disposed. The hind-legs, too, are always more inclined to swell from this circumstance, and the horse when lying down frequently slips backwards in such a manner, that, being at the utmost length of his halter, he is unable to rise on his legs owing to the confinement of his head and neck.

The ground surface of the stall, therefore, should be perfectly level both before and behind, and in order to carry off the urine a drain may be made under the surface with a grate about six inches square in the centre, and which part of the surface should be rather lower than the rest.

The manger should be so contrived as to slide into the wall, so that when he is not feeding he may have nothing to bite at whilst he is being cleaned, which habit often teaches them to become crib-biters. The racks should be made of cast iron, in which case no splinters can rise to wound the animal's lips. They should be perpendicular with the wall, because by hanging over hay seeds sometimes get into the horses eyes, and produce great inconvenience. The door of the stable should be at least seven feet high, in which case the horse will be less liable to strike his head against it in passing through it.

Stables appropriated to horses that work in stage-coaches, or post-chaises, are seldom divided by stalls. The partition is generally made by a bale, namely, a circular wooden bar, suspended by a chain both at the manger and at the post. When this bale is confined to a certain extent of motion, by the shortness of the chain at the post, and the horse, when lying down, happens to have his body cross-ways under it, if he rises up suddenly in that direction, he is in great danger of injuring, if not absolutely breaking his back, by forcing it against the bale, and which, by being confined by the shortness of the chain, does not allow height enough to enable him to get upon his legs. This accident occured some years ago very frequently at the barrack-stables at Birmingham, and several of the troop-horses were so much injured as to become totally useless, and were in consequence destroyed.

In those cases where there is no division whatever, much inconvenience often arises from horses kicking, as well as by standing so close together as to prevent each other from lying down. It also enables a greedy horse to devour his neighbour's corn as well as his own, in which case both suffer, more or less; the one from having too much to eat, and the other too little.

They are more liable also to infection by smelling to each other, as well as to injuries in the eyes, by bites either in play or in earnest. Inn-keepers and coach-masters, therefore, would find it to their interest to separate their horses from each other by stalls, such as have just been described.

The foregoing are the principal points to be attended to in the structure of the stable, and the next object to be considered is the management of the horse in regard to cleaning, food and water. The horse, although he is a quadruped of the herbiverous class, does not chew the cud, as is the case with those that have cloven feet, as such a process would have interrupted, in a very material degree, the purposes for which he is generally employed. His stomach, therefore, is smaller and is confined to one bag only, whereas in those animals that chew the cud, it is generally divided into four partitions, and occupies a much larger portion of the abdomen, or belly. But as he receives but a small quantity of food at one time, he makes up the deficiency in space, by filling it more frequently, so that, in fact, he is almost always eating whilst he is in a state of rest. His digestion also is very rapid and less complete than is the case with quadrupeds that chew the cud, for in those animals, the food is thrown up again into the mouth, and chewed into a pulp, whereas in the horse it passes quickly from the stomach into the intestines, which in him are very large, particularly the cæcum, or blind-gut.

It is probable that the food undergoes very little alteration in the stomach of the horse, perhaps little more than being combined with the gastric juice, as it is generally found in the duodenum very little changed in its appearance, or substance; and, indeed, a great number of oats may frequently be discovered in the dung in a whole and undigested state. The cæcum, or blind-gut, is extremely large, and terminates in a point called its appendix. This terminating end is sometimes filled with stones of large dimensions. Some have been found so large as eight inches in diameter. These stones probably are formed from the accumulation of the earthy particles received with the food, and which being lodged at that end of the gut through which there is no passage, collect together, and in process of time form one solid mass. These stones, whilst they remain fixed and immoveable, do not much disturb the action of the intestines, but if they happen to shift their station towards the mouth of the gut, death sometimes ensues. The stomach is an elastic bag so as to adopt its capacity to the quantity of food contained in it, whence it may be said to be always full, so long as any thing remains within it; and when it is quite empty it collapses close together, so as to leave no space whatever. It sometimes happens, when the digestion is imperfect, or when the horse has eaten food disposed to fermentation, that a considerable quantity of wind occupies the stomach, so that it becomes distended in a greater degree than is necessary to contain the quantity of food or water that may happen to be within it. In this case when the horse is put into a brisk trot, the water and the wind are constantly displacing each other within the stomach, and this circumstance is the cause of that rumbling noise which is often heard in horses that are put into action immediately upon being taken out of the stable, and which noise has been erroneously supposed to exist in the pressure or sheath.

The strength and direction of the muscles of the stomach give it a great power in forcing its contents into the intestines, and they are so constructed as to prevent regurgitation or vomiting. The fibres of the mus-

cles that surround the cardiac, or receiving orifice of the stomach, cross each other so as to close it like the mouth of a purse, and completely prevent any thing from returning. This prevention from vomiting was necessary on account of the peculiar formation of the horse's mouth, which has a natural obstruction to the return of either solids or fluids through the mouth, and which, if the stomach had been capable of throwing them up, must have passed through the nose.

At the back part of the roof of the mouth there is a membrane, or curtain, which drops down and lies upon the tongue. It is styled in anatomy, *Velum Palati.* This membrane in the human being ends in a point, called the uvula, but in the horse it has one regular form.

When the horse swallows, the food or water, in its passage to the throat, raises up this membrane, but as soon as it has passed, it drops again upon the tongue and prevents any thing from returning. This incapability of vomiting, whatever may have been the original reason for it, may in one respect be considered a disadvantage, as it deprives the animal of one way of unloading his stomach when it is overcharged or when it contains any thing that disagrees with it. This circumstance, therefore, shews the necessity of regulating the quantity of food to be given at one time.

When the horse is at grass and has the opportunity of helping himself to food whenever he pleases, he eats frequently and in a moderate degree, but when he is confined in the stable, and is kept for any great length of time without food, he eats so voraciously as sometimes to overload the stomach, and this happens more particularly in stables where they stand together without any partition. The consequence is, that the stomach becomes distended to a great degree, and its digestive process is impeded, if not totally destroyed, and as there is a great sympathy between the stomach and the brain, this state of indigestion produces apoplexy, or what is called the staggers, and which is generally an incurable disease.

This disease is certainly more prevalent amongst waggon and post-horses than any others, and this sufficiently proves the bad consequences of not attending to a proper regulation in regard to diet. The quantity of food given to a horse ought to be regulated in some degree by the extent of the labour which he has to perform. Eighteen to twenty pounds of hay, and a peck of oats daily, will in general be found fully sufficient, but in cases where the animal works hard, for instance, in a mail-coach, or post-chaise, another half-peck of oats may be added.

It is very frequently the practice in farmers' stables to give new hay to their horses, but the hay in that state is very unwholesome by its being very difficult of digestion, for by not having undergone a sufficient degree of fermentation, or what is called sweating, in the rick, it has a husky wiry quality, and is not so easily divided by mastication. The consequences of eating hay in this state are sometimes similar to the staggers, and equally fatal. Chaff or cut straw helps to fill the stomach, but much nutriment is not to be expected from it. Green vetches and clover are a useful change of diet in the spring of the year for horses that cannot be turned to grass, but they should be given in moderation, as their effect is sometimes dangerous from swelling in the stomach by the rarefaction of the air contained.

Carrots are both wholesome and nutritious, and are said to be beneficial to thick-winded horses. Swedish turnips also constitute a very excellent food for horses employed in agricultural purposes.

A small quantity of hay should, however, be given with them. They are gently diuretic, and on that account prevent in some degree the swelling in the legs, to which cart-horses are more subject than others. In seasons when hay is scarce, it is a good practice to cut unthreshed oats from the rick in a chaff-cutter, and to give them in the same way as bran and chaff. Let the food, however, be what it may, it is best to give it in small quantities at a time, and often. By pursuing this plan, there is much less wasted, and the horse does not blow upon it, which is often the case when he has more than he can eat at once. The stomach of the horse being small requires to be filled more frequently, hence he is almost always eating when he has the opportunity.

Horses always prefer soft water, and will drink it even when it is thick and muddy. When out at grass in a state of nature, they drink but a small quantity at once, but when in the stable it is customary to give them water twice during the day, a pailful at each time. But this is not so judicious a plan as to water them more frequently, and with a smaller quantity. The practice of giving warm-water, as is generally the case in hunting-stables, is attended with considerable danger, as it renders the animal liable to be griped whenever he drinks it in any other state. It doubtless is improper to give cold water to a horse in a sweat, but other periods may be found when he may drink it with safety. It is a foolish practice to gallop a horse immediately after drinking. This is very frequently done under the pretence of warming the water in the stomach, but it is productive of considerable inconvenience to the animal, as the action of respiration must be more or less impeded in consequence of the increased pressure of the stomach against the diaphragm from its being distended with water.

There is a very general, but erroneous idea, that the suffering a horse to drink as much as he is inclined to take, endangers his wind. But so far from this idea being founded in fact, it is much more prboable that the want of a sufficient quantity of water has a tendency to produce what is called broken-wind. For it should be borne in mind that the animal, when in the stable, lives upon dry food entirely, and consequently requires more fluid to give the food that degree of moisture in the stomach which is necessary to assist digestion. It should be recollected also, that horses which work hard throw off a great quantity of perspirable fluid through the skin, and the blood in consequence becomes more thick and sigy, and more disposed to an inflammatory state, and, for this reason, it is evident that they require more water.

It is customary in racing and hunting-stables to keep the horse fasting several hours before he commences his labour. It would certainly be injudicious to suffer him to fill himself immediately before starting; but, on the other hand, there is a certain degree of debility occasioned by long fasting, which must more or less reduce the powers of the animal for accomplishing the labour he has to perform.

A hunting-horse generally quits the stable

at an early hour in the morning, and having had but one small feed of corn and very little or no water, he is frequently ridden for seven or eight hours without intermission. In this state he must become sooner exhausted than if he had been better prepared by food and water in a proper quantity; for whatever he might take previously to going out in the morning, (provided he was fed early) would undergo the process of digestion, and would probably be so disposed in the intestines as to occasion no inconvenience whatever. But the bad consequences of long fasting do not end here, for when it is combined with excessive fatigue, the stomach loses its tone, and the appetite does not return until the following morning.

When this occurs, cordial balls are generally given, with a view to strengthen the stomach, but this practice, in regard to the horse, is as bad as dram-drinking in the human being, and is generally attended with the effect of weakening instead of strengthening the animal.

The proper method of cleaning a horse is so well known as to require little or no remark, still the due and regular performance of it is highly essential to the health of the animal. During thepr ing and autumn, at both which seasons the horse sheds his coat, the currycomb should not be used, as it would force off the hair more rapidly than nature can afford. During those periods, therefore, the horse should be rubbed only with a whisp of straw and a brush. Post-boys and others, who have the care of stage-coach horses, have a practice of washing them all over immediately after they have run a stage, and this is very frequently done by riding them into a river or pond above their bellies, and afterwards leaving them to dry in the stable and sometimes even out of doors. It might be supposed, that a moment's reflection would point out the impropriety and danger attendant on this practice, especially when the horse is in a state of violent perspiration. For the pores of the skin are not only closed by the sudden application of the cold water, but a great degree of cold is produced by the evaporation which is going on whilst the skin is becoming dry. That they outlive the effects of this treatment is no proof of its being harmless, for it merely shews the power of resistance to injury with which the animal is endowed by nature. But although it does not always destroy the life of the horse, still it is very frequently the cause of several diseases, such as inflammation of the lungs, or the intestines, and if the animal escape these dangerous attacks, he is still liable to the grease and farcy. Old horses, that have been subject to this treatment, become so stiff and inflexible in their limbs, from the cold which is thus applied to their bodies, that they do not get the free use of them until they have gone at least two or three miles.

It sometimes happens that horses, after they have been hard ridden, although they have been thoroughly cleaned and dried, break out again into a sweat in the stable, and this arises from the vessels of the skin having been so much distended in the act of throwing out the perspirable matter, that they do not immediately recover their contractile power, and hence the heat of the stable is sufficient to occasion a fresh perspiration. The dung should never be suffered to remain in the stall, as the effluvia arising from it is not only unwholesome but

also very irritating to the eyes and lungs. It is also very necessary to scrape and scour the rack-staves and mangers at least once a month, as a great quantity of filth is collected, from the saliva and breath of the animal becoming condensed on their surfaces. There are few grooms who would chuse to eat off the same plate unwashed for two days together, yet they seldom reflect that the horse is in fact obliged to submit to such a nauseating circumstance for many months without intermission. For the same reason, the bit of the bridle should be kept perfectly bright and clean, and the oil should be thoroughly wiped off before it is put into the mouth, as the horse has a natural aversion to any thing greasy. It is also conducive to the health and comfort of the animal to wash the horse-cloaths frequently. The padding of the saddle should also be thoroughly dried by exposing it either to the sun or to the fire. The feet should be picked and washed after exercise, and if hard and dry, should be stopped with clay, but never with cow-dung, which last application, from its putridity, has a natural tendency to render the frog of the foot diseased and rotten At those periods of the day when the horse is in the stable, the litter should be removed entirely from under him, that he may stand on the bare pavement. This practice is beneficial to the legs and feet, which are always heated more or less by standing buried in the straw. As the horse, however, is accustomed to stale or evacuate his urine on the litter, it often happens that that custom has such an influence on the action of the urinary organs as to render him incapable of discharging his urine on the bare pavement, and on this account it is necessary to place a small quantity of litter under his belly, to induce him to attempt it, and to save him the pain and inconvenience of holding his water. The effect of association of certain actions in the animal oeconomy is very remarkable, thus it is usual to whistle to a horse when he shews an inclination to stale, and it is certain that the whistling has a considerable influence on that occasion. But it would be absurd to suppose that any connection exists *originally* between the sound of whistling and the sensibility of the bladder; the cause of such an effect, therefore, must arise from beginning to whistle to the animal whilst he is a colt whenever he is perceived in the attitude of discharging his urine, and hence, in process of time, the two habits become so associated as to produce an inclination to stale whenever he hears the whistle. The same want of reflection which so commonly marks the generality of riders and drivers in regard to the natural properties of the animal is strongly manifested in the cruel and unthinking custom of forcing him to travel on, when he has occasion to stale. From this circumstance the sphincter of the neck of the bladder acquires the habit of contracting so forcibly as to resist the stimulus of the fluid within it, and on this account there are but few aged horses that are not afflicted more or less with stranguary.

An opinion formerly existed, and is still maintained in some places, that the keeping a goat in stables has the faculty of preventing infectious diseases. If such an opinion had nothing more attached to it than its absurdity, it would not be worth noticing on the present occasion. But the fact is, that, instead of having any such effect as the one

ascribed to it, it is the cause of introducing a very unpleasant odour, which arises from the body of the he-goat, into the stable, and which must naturally be very offensive to the horse, and probably causes him frequently to refuse his food, especially after the goat has jumped into the manger, which they constantly do to eat up whatever remains. A tame fox in a stable-yard is nearly as great a nuisance as the goat. In fact, the horse is a very cleanly and delicate animal, and has a strong aversion to every thing that is disagreeabl either in smell or taste.

ON COLT BREAKING.

This necessary preparation of the horse, without which he is of no service to mankind, is of the utmost importance, because on its being accomplished on proper principles his future utility chiefly depends. At a first view it appears wonderful that an animal possessed of such great strength, as well as the power of being mischievous and dangerous, should be so soon brought under subjection, especially when the means generally employed for that purpose are duly considered. In most parts of the country the persons to whom this task is assigned, are generally of a violent and brutal disposition, and which is not a little aggravated by habitual drunkenness. Possessing no system, their operations are carried on not only with violence, but often in direct opposition to the economy of the animal; and hence it is not surprising that so many colts become restive and ever after unmanageable. The mental powers of quadrupeds are confined to certain limits, just sufficient for the purposes of their existence. The principal source of their understanding is memory, but their memory never acts abstractedly, that is to say, without the presence of the objects which they have been accustomed to see; and this constitutes the chief difference between reason and instinct, for reason gives the faculty of associating ideas and drawing conclusions independently of any local or concurrent circumstances.

The most ferocious animals recollect the person who feeds them, and shew a great attachment to him, but this attachment arises simply from the recollection of receiving their food from his hands. The groom of Darius, king of Persia, appears to have been well aware of this power of recollection in animals; for it having been agreed amongst a few of the principal commanders of the Persian army, that he, whose horse should neigh the first, should be elected king; Darius's groom gave his master's horse a mare over night on the spot where the election was to take place, and in consequence of that scheme, the horse, when brought there in the morning, recollected what had taken place on the preceding night, and neighed immediately, in token of his satisfaction.

If, as was recommended in a former chapter, the colt has been handled and haltered from a very early age, a great deal of the danger and difficulty of breaking him will be prevented; for it is impossible for him to know what is intended to be done to him when he is first taken in hand. This, therefore, shews the necessity of beginning with the utmost coolness and gentleness in order to convince him that no harm is meditated towards him. When the first lesson is over, and which should, by no means, be very long, it will be adviseable to feed him immediately after taking off his bridle, and by constantly following up this practice, he will associate the two actions together, and will remember the bridling as the forerunner of the feeding, and will thence become soon reconciled to that process. In the applying the bridle and saddle to a colt, it should be remembered that he is more tender and sensitive than an old horse that has been accustomed to the pressure and constraint of those articles.

The bit, therefore, should be a plain snaffle, and much thicker than the common ones which are afterwards used, and in the centre or hinge of it a small plate with moveable beads should be fixed, so as to lie upon the tongue. This is called a slabbering-bit, and the centre part of it lying loosely upon the tongue excites the horse to move his jaws, and prevents him from bearing heavily upon it so as to deaden his mouth. When he is thus bridled, he is reined up to the surcingle that goes round his body. But this should be done not too tightly at first, nor for too long a period of time, as the confinement of the head and neck occasions great pain when too long continued. It is customary to lead the colt at first with a cavesson, which is buckled round the nose; but this is a very harsh and severe instrument if not used with gentleness; and instances have occurred where the bones of the nose have become diseased from being pinched and bruised by the sudden and violent jerks given by the hand of an impatient and unskilful breaker. In fixing on the saddle great attention should be paid to the placing it in the proper part of the back, for if it is placed too forwards it will press against the hinder part of the shoulder-blades, and by impeding their free motion, it will not only baulk the colt in his action, but will make him restless and uncomfortable. The same attention should be paid to the girthing, which should not be tighter than just sufficient to prevent the saddle from turning round. The crupper also should not be too short, that it may not gall the tail. When the colt is led in or out of the stable, his head should not be reined up, but should be at perfect liberty. From not attending to this circumstance it frequently happens that he hangs back from the natural apprehension of striking his head against the upper part of the door In this case he is generally whipt by some persons standing behind him, and he then rushes forwards in an irregular manner, and often bruises his hips in going out or coming in. However trifling these things may appear, still much of the quietness and tractability of the animal depends upon a due attention to them; for although a dull and sluggish colt will submit without much resistance, yet one that is high mettled or fearful will not so soon accommodate himself to such harsh and inconsiderate treatment. When a colt is

shy about his head, the greatest gentleness should be used in putting on the bridle, for if he is once alarmed by improper haste or violence, he most probably will never forget it, and will always be more or less troublesome in that respect. When any thing is done to his head, he should never be held by the *lower* part of his nose, because, as the horse breathes only through his nostrils, and not through his mouth, the pressure of that part of the nose stops his breathing, and he naturally becomes impatient from the dread of being suffocated.

Another circumstance, which is frequently the cause of shyness about the head, arises from accidentally burning the inside of the ear, during the foolish operation of trimming out the hair. The same thing may occur also in singeing the under part of the lower jaw. In handling his legs and feet, especially at the first time of his being shod, the greatest care should be taken that no violence is used, for many a horse is rendered vicious and difficult to be shod for want of a due attention to this circumstance.

It is a good practice to let him eat some corn held in a salver by the groom whilst he is being shod, and by repeating it he will begin to associate the two actions together, and will thence have no dislike to the operation.

When young horses are first brought into work, their age, size, and constitution should be taken into consideration. Small horses are generally more capable of enduring fatigue at an early age than large ones, because they sooner reach their natural growth, and are more united in their form and action.

A long-legged cross-made colt has many disadvantages to struggle with, especially if his muscular strength is disproportioned to the size of his body. Thorough-bred colts acquire strength comparatively at a much earlier age, and it is customary to begin to race them at two years old, but their future growth is perhaps considerably impeded by the violent treatment which they undergo in training; indeed, it is no uncommon event for some of them to die from being over-purged or sweated. It frequently happens, also, that they suffer a good deal at this age from their teeth, as well as from the strangles; and when this is the case, great caution is required not to add to their weakness by an immoderate use of purgatives or exercise. But there is a too prevalent opinion in racing stables that a purge is of no service except it operates in a violent degree. The principal use of a purgative at that age is to bring away worms, as colts, whilst they are growing, are seldom very fat. It should also be recollected that their joints are not sufficiently firm to bear much galloping, and that thence they are more liable to break down from violent or too long-continued exertion.

The first lesson in breaking a colt is to lounge him in a circle. For this purpose a cavesson is fixed on his head, with a long thin cord attached to it. This cord being held by the breaker, the colt trots round him in as large a circle as the length of the cord will admit. The celebrated Duke of Newcastle, in his treatise on horsemanship, describes this lesson of the circle, best adapted to give ease and pliancy to the shoulders, and there can be no doubt of his opinion being well founded. When the animal is trotting in a ring, his inside legs

and outside legs move on two different circles, the outside one of which must of course be the largest. It follows, therefore, that the outside legs have to cover more ground than those of the inside, and consequently a greater extension of the shoulder and foreleg is required. Whilst going in a circle the horse is obliged to incline his body inwards towards the centre, and when the circle is very small he leans so much that if he were going in a strait line he would fall on his side.

This leaning, therefore, brings that side of the body which is within the circle nearer to the ground than that which is on the outside, and he is therefore obliged to shorten his inside legs to accommodate them to this position, by bending the joints in a greater degree, and thereby raising the limbs nearer to the body.

But in order to give the animal the true benefit arising from this lesson, his head and neck should be perfectly at liberty, and not reined up to the circingle, as is the practice with country colt-breakers in general. It is however a very severe and fatigueing lesson, and should not be continued too long at a time.

It is a common and a just observation, that very few horses walk well; and this proves that certain natural qualifications in regard to form and the position of the legs is absolutely necessary to enable the animal to execute this pace in a free, graceful, and vigorous style. The walk consists of an alternate sinking of the fore and hind quarters. Thus, when one of the fore-legs is advanced, the fore-quarters must sink until the body is brought forwards, when the leg will recover its perpendicular position. The same takes place in regard to the hind-quarters.

The horse should move light, firm, and quick. The knee should be somewhat bent and the leg remain suspended in the air for an instant, and the foot should alight perfectly flat upon the ground. This temporary suspension of the leg in the air, during the walk, is one of the best proofs of soundness, because if the horse felt any pain in his feet, he would not support himself so long upon one leg, but would bring the other to the ground as quick as possible for relief.

In order to walk well, a horse must be well shaped, particularly in his fore-quarters, for if he is not firm and well on his centre of gravity whilst he is standing still, he never can be firm and elastic during progression. For this purpose his shoulders should be oblique and lie well towards his back, and the forelegs should be perfectly perpendicular from the chest to the ground; for if they incline too much under the body the horse will step short and on his toe. They should also be of a proportionate length with the hind-legs, that the motion of both the fore and hind-quarters may be in unison.

The chest should not be too narrow, nor the toes turn outwards, in which case the legs are very apt to strike each other in going, especially on an uneven road. On the other hand, if the chest be too wide, the horse will tread principally on the outer-quarter of the foot, and will therefore be more unsteady than if he pressed equally on every part. Wide chested horses generally have a rolling motion in their gait, which is in some degree unpleasant to the rider. It is a great auxiliary to a light and airy style of walking that the neck should issue high out of the chest, and the head be well united to it, so as to give it the greatest possible liberty.

The hind-quarters, though not so essential to good action in a slow pace as to speed, should be well constructed. For this purpose the hind-legs should not stand too far backwards from the body. The shank-bone below the hock should be perpendicular and within the line which falls from the end of the croupe to the ground. Such a position of the hind-legs enables him to bring them quickly under the body, and thereby to accelerate the motion of the fore-legs, by sustaining a great part of the weight, whilst the fore-quarters are in action. Young horses that are eager and high couraged require some pains to confine them to the walk, and this is only to be done by the greatest coolness and perseverance on the part of the rider.

They should therefore be restrained with a light and firm hand, and should never be roughly checked by the bridle, or chastised with whip or spur, as such practices only render them more impatient and unsteady. A young horse, if possible, should always be ridden with rather a loose rein, straitening it only when he is likely to change into the trot.

A tight rein is sure to spoil the mouth of a young horse, for it teaches him to bear upon the hand, and consequently throws much of his weight on the shoulders, thereby impeding their action in a very considerable degree, besides deadening his mouth and rendering it more difficult to stop him when it is necessary.

In the walk the horse moves his legs diagonally, that is to say, a fore-leg and a hind-leg of the opposite side. Thus, if he leads with the left or near fore-leg, the right or off hind-leg follows in succession, but before the foot of the hind-leg reaches the ground the fore-foot of the same side is lifted up to make room for it; and this action is carried on on both sides alternately.

If the horse moves a fore-leg and a hind-leg of the same side at the same time, it is called "*ambling*." This is seldom a natural pace, but it is taught the animal in some countries where it is preferred to the walk, on account of its occasioning less motion to the rider; because the rising and falling of both the fore and hind-quarters takes place at the same time, and not alternately as in the walk. Some horses will amble at the rate of six miles an hour, but it is a very ungraceful action, and is probably less safe than the walk. It generally happens that if a horse walks well, he goes well in every other pace. In the walk the legs are moved in succession, one after the other; but, in the trot the horse moves two at once, that is to say, a fore-leg and hind-leg at the same time, but on opposite sides. To perform this pace well, the knee should be elevated and advanced so as to be seen by the rider, projecting beyond the point of the shoulder, and the hind-quarters should bend well, particularly in the stifle and hocks, by which means the elastic spring of the whole machine is increased. When the trot is accelerated to a great degree, there is a moment of time when all the legs are off the ground at once, and during this period the horse advances not only the distance which he embraces by the extension of his limbs, but also some distance by the momentum of his body whilst all his legs are in the air. It sometimes occurs when a horse, (particularly a young one) is forced in the trot beyond his powers, that he gets into a confused pace, namely, to

trot with his fore-legs and to canter with his hind-legs, or *vice versa*.

In this case he should be stopped instantly, because such an imperfect action not only reduces his speed, but renders him unsafe in his going. When the horse is badly formed in his fore-quarters, and goes heavily on his shoulders, he is very apt to strike the shoe of his fore-foot with the toe of his hind-foot. This occasions an unpleasant noise, and also endangers his falling in case the toe of the hind-foot should catch the heel of the shoe on the fore-foot, which sometimes occurs. This may be remedied, in some measure, by throwing him more on his haunches, and by keeping the toes of his hind-feet as short as possible.

A horse, whose fore-legs are not of a proportionate length with his hind-legs, or whose back is short in comparison with the rest of his frame, generally trots with his hind-legs so widely separated from each other, as to alight on the outside of the fore-feet at every time they reach the ground, or else he goes obliquely like a dog, by which means the fore and hind-legs move in two different lines of direction, so that one hind-foot alights on the outside of the fore-foot, and the other hind-foot between the two fore-feet, and by this method the horse avoids overreaching. The long darting trot is not so speedy as the short quick trot, but it shews great muscular power and elasticity, and is more peculiar to thorough-bred horses than to any others.

Some horses have been said to have trotted even eighteen miles within the hour, but their pace partakes more of a run than a regular trot, as they move their legs separately as in the walk, and not a fore-leg and hind-leg at the same time, as in the trot. Horses that are kept solely to trotting, can hardly be made to gallop, and this occurs from the muscles being constantly employed in one peculiar action, so that they cannot adapt themselves to any other.

THE CANTER

is a very easy and pleasant pace to the rider when it is well performed. It is not, however, a natural pace. When the horse has occasion to shift his station, he generally does it with a velocity in proportion to the occasion.

If he is inclined to move faster than the trot, he changes into the gallop, and not into the canter, which, in fact, is not more speedy than the trot. The manner in which the horse is taught to perform this pace, is, by shortening the gallop. But it is first necessary that he should be well shaped in his hind-quarters, and stand with his hind-legs rather under his body; he should also be high in his fore-quarters, as it is very difficult to make a horse canter well that is low before, or long-backed, with his hind-legs standing far behind him.

The Canter is divided into four motions, which is the cause of its being so much easier to the rider than any other pace. Thus, if the horse leads with the off fore-leg, the feet will come to the ground in the following order, namely, the near hind-leg, the off hind-leg, the near fore-leg, and the off fore-leg, and during this succession of action, there is a moment when three feet are on the ground at the same time, and in the same order as in the walk; for instance, the two hind-feet, and the near fore-foot will be

on the ground just prior to the instant when the off fore-foot alights, which having taken place, the near hind-foot rises, leaving the other three, viz. two fore-feet and the off hind-foot stationary.

In the Canter the horse moves obliquely, by advancing either his right or left shoulder in conformity with the leading leg. Thus, if he leads with the right fore-leg, the right hind-leg must follow, and be advanced more under the body than the left leg. By this inclination of the body, the fore and hind-legs move in two different lines of direction, so that if the horse leads with the off fore-leg, the near hind-leg takes the line between the two fore-legs, by which means his croupe is thrown outwards to the same side on which he leads, and the reverse of this will of course take place if he leads with the left leg. When the horse leads with the right or off fore-leg, and follows with the left or near hind-leg, he is said to canter false. This renders his motion both irregular and unsafe, and is particularly unpleasant to the rider. Whenever this false action occurs, the horse should be stopped instantly.

Horses are generally taught to lead with the off fore-leg, because it is easier to the rider, who, when holding the reins in the left hand, inclines his body somewhat to the left side, and which inclination agrees with the oblique direction of the horse's body. But he should be suffered to lead with either leg occasionally, because if the animal is confined always to lead with the same leg, the opposite limbs become so contracted in their action as to lose much of their natural elasticity; besides that, the fore-leg which does not lead comes to the ground first and receives principally the weight and shock of the body, thereby wearing itself out faster than the other.

If the horse is required to lead with the off fore-leg, it will be necessary to shorten the near or left-hand rein, and to press the horse's side with the left leg, and to apply the spur if necessary. By shortening the left rein, his head and neck will be inclined to the left or near side, which will confine the motion of his near or left shoulder, and force him to advance the off shoulder at the same time the pressure of the rider's left leg throws off the croupe to the right side, and obliges the hind-quarters to take the same direction as the fore-quarters. If he is required to lead with the near or left leg, the right hand and heel must be employed for that purpose. A horse that canters well must have a light mouth, for if he bears heavily on the hand of the rider, he must go on his shoulders, and consequently his action will become more unsafe.

THE GALLOP

is the swiftest pace of which the animal is capable, and differs in nothing from the canter except in its velocity. When this pace is to be executed the body is carried perfectly in a horizontal posture, and with very little motion either upwards or downwards, but it requires great muscular power in the limbs to preserve this strait line in the motion of the body, because as the body sinks nearer to the ground during the gallop, the legs must bend very considerably at every joint, in order to clear themselves from the ground, every time they are advanced to take a fresh stroke. There is a considerable difference between the gallop of the horse and of those

animals that have flexible spines or back-bones, such as the dog, cat, and the hare. These animals gallop with their fore and hind-legs extended at the same period, so that every time the legs recover themselves to take a fresh impulse they cross each other, that is to say, the hind-legs come beyond the fore-legs when they meet under the body.

Hence at this period of gathering the legs together, the back forms an arch, by which means the hind-quarters are brought more under the centre of the body, and this is the chief cause of the comparative swiftness of those animals in proportion with their size.

But the gallop of the horse is very different, for had his back possessed such a degree of flexibility as to have formed an arch alternately with the action of his legs, it would have been impossible for the rider to have kept his seat during such an alternate elevation and depression of the back-bone. The horse, therefore, never extends his fore-legs and his hind-legs at the same time, during the gallop, hence all the representations of that action in pictures of race-horses are false and erroneous, for the hind-legs and fore-legs follow each other; for instance, when the hind-legs are at their utmost extension backwards, the fore-legs are under the belly, and just quitting the ground to throw themselves forwards, but the hind-legs instantly follow, so that when the fore-legs are extended forwards the hind-legs are brought under the body to take a fresh spring.

The legs, however, do not alight all at the same moment, but in a regular succession and nearly in a line, and at equal distance from each other. The late Mr. St. Bell, who certainly understood well the paces of the horse, divides the gallop into three. The common gallop, he says, contains three times. If, for example, the horse begins his gallop on the right, the left hind-foot beats the first ume, the right hind-foot and left fore-foot beat the second time together, and the right fore-foot beats the third. In the gallop of four times, the feet strike the ground in the same order as in walking. Supposing the horse galloping on the right, the left hind-foot beats the first time, the right hind-foot beats the second time, the left fore-foot beats the third, and the right fore-foot beats the fourth. This gallop is regular, but confined, and little adapted for speed. The gallop at two times is faster than at three or at four. The legs follow in the same order as in the trot, so that the two sounds are given by the left hind-foot and right fore-foot striking the ground together, and by the right hind-foot and left fore-foot also striking the ground together.

In galloping, the horse may lead with which fore-leg he pleases; but whichsoever it be, the hind-leg of the same side must follow next, otherwise the legs are said to be disunited and the gallop to be false. To remedy this disorder, the rider must stay the horse a little on the hand, and help him with the spur gently on the contrary side to that on which he is disunited. As for example, if he be disunited on the right side, he should help him with the left spur, by staying him as before on the hand a little, and also helping him at the same time with the calves of the legs. When galloping in a circle the horse is obliged to lead with that leg which is on the inside of the circle, because he leans inwards, and consequently requires that leg to be more advanced for the purpose of supporting the weight of the body.

Horses in galloping sometimes change the leading leg whilst they are going. It has a very beautiful effect when well performed, and is a proof of great strength and command of their limbs. It is necessary, however, that the hind-leg on the same side should change also, or else the horse will gallop false.

It is a common practice with most grooms and jockies to teach horses to pull against them in the gallop, and it is supposed that a horse cannot go at speed in any other way. But when the animal bears thus upon the hand of the rider, a considerable portion of the power which should be concentrated in his body for the purpose of maintaining his equilibrium is directed forwards, and hence he becomes more liable to fall, in case of meeting with any casual obstacle. There is indeed a very prevalent idea with most riders, that the bridle has the effect of keeping a horse from falling; hence, whenever the animal trips, the rider pulls hard with the rein, and the consequence is, that if it happens to be a curb-rein, it draws the horse's head inwards towards his chest, and by thus confining the action of his head and neck, is more likely to accelerate his fall than to prevent it. If the rider were seated on any other body except that of the horse upon which he rides, he might have the power of assisting the animal by pulling against his mouth, as for instance, a coachman on a coach-box, but when seated on the horse's back, he becomes as it were a part of the animal, and his own body must go with that of the horse in whatever direction it may happen to be.

The best and most pleasant action is when the horse carries his head moderately high, and occasionally plays with the hand of his rider. It is also essential that he should have perfect liberty in the action of his hocks, so as to enable him to bring his hind-quarters well under the body, by which means a great portion of the weight is taken off the fore-quarters, and their action thereby assisted. Speed does not depend so much on the length of ground which the legs cover at every stroke, as it does by the quick repetition of motion.

And this is proved by comparing the greyhound and the hare, both of which are very little inferior in speed to the horse, yet cover but a very small portion of ground comparatively with the latter.

During the gallop there is a period of time when all the legs are in the air at once, and at that instant the body moves on by its own momentum, like a ball discharged from a gun, so that the horse not only advances the space of ground which his legs cover when extended, but gains also an additional space by the impetus with which his body is propelled forwards, and this impetus or momentum will of course be in proportion with the power of the hind-quarters from whence all motion proceeds.

Sportsmen have a curious but mistaken idea, that a horse when going over a leap can increase his impetus whilst he is in the air, in case he finds the ditch on the other side wider than he expected. But the hind-quarters cannot act unless the feet have some fixed point to spring from; the degree of action therefore in the leap must depend on the force employed in quitting the ground, for the animal cannot find any point of resistance from which he might make a fresh spring, or increase the original one,

whilst all his legs are in the air. It is a bad practice to hold a tight rein whilst taking off at a leap, as it confines the horse's fore-quarters, and consequently checks him.

Riders do it for the purpose of obliging the horse to collect himself before he takes off, but it is probable that the animal is in general better able to calculate the extent of his own powers than his rider, and it is a fact pretty well known to experienced sportsmen, that one half of the falls which happen in the field are occasioned by the irresolution of the rider, and the consequent baulking of the horse at a time when he should be left to himself.

There is another pace very useful to the horse, although it is not a natural one, which is what is called passaging. It consists in moveing nearly sideways, so that the fore-legs and hind-legs go in two different lines of direction. It must be practiced along the side of a wall or a hedge, and generally with the head facing the wall. The body should not be quite at a right angle with the wall, but somewhat oblique, with his fore-quarters a little turned towards the line in which he is moving. Thus if he is passaging to the right, his shoulders should incline the same way; but in order to prevent him from going in a strait line, the rider's left leg must be applied to the flank so as to force his croupe outwards, and at the same time the right-hand rein should be rather straitened. The horse then crosses his left leg over the right, in both fore and hind-legs, and if he is going to the right, the reverse takes place.

It is a very useful pace to carriage-horses, as it enables them to turn with greater facility, and prevents them from treading on their coronets whilst crossing their legs.

It is taught to all horses employed for military purposes, and it is upon this account that old troop-horses are so easily broke to harness, and are so handy in their turning. There is another pace, called the passage, on a strait line, practiced very much both in Germany and Italy. For this they chuse a temperate horse, that has good action, and leading upon a strait line, on a walk or a trot, they teach him to lift two legs together, one before and one behind, in the form of a St. Andrew's cross, and in setting those two to the ground, to raise the other two alternately and keep them a long while in the air, and in such a manner, that at every action he does not gain above a foot of ground forwards.

The beauty of this pace consists in holding the legs a long time in the air. The motion, however, of the legs is the same as in the walk or the trot, for they go in the same order, and the only difference is, that in passaging upon a strait line the legs are kept longer in the air. It is very difficult to teach a horse this pace, and so much art and patience are required, that a horse is two or three years in training to it.

Amongst other paces it is very essential to teach a horse to back either in or out of harness, for many aukward situations occur which render it necessary. But the common treatment of the horse in harness, especially in light carriages, is such as to render it a matter of wonder that the animal can be brought to understand in the least degree what is required of him.

The obvious use of the whip is to urge the animal to proceed, and a high-mettled horse very seldom requires any stimulus of that sort, but what must be the result when

he is whipt to make *him stand still,* for the animal must be endowed with more than human perception, if he can make any distinction when the same means are employed to make him go on, and also to stand quiet. The custom also of reining the head up so high with the gag-rein as is the common practice, has a very pernicious effect on the animal, especially if he is thick in his throat at the setting on of his head to his neck, for it occasions such a pressure on the jugular veins as almost to stop the circulation of the blood from the head, and very probably contributes in a great degree to produce most of those diseases of the eyes with which coach-horses are affected. It also, by raising the head so high, throws the fore-quarters out of the line of draught, and consequently deprives the horse of the means of applying his strength mechanically to the best advantage, independently of the uneasiness and pain which it produces in the bones and muscles of the neck by keeping them confined to one posture for such a length of time. Hence when coach-horses, reined up in this manner, are standing in the street, it may generally be observed, that they put out their fore-legs as much as possible, so as to lessen the angle between their necks and their fore-quarters.

But the greatest evil to which carriage-horses are exposed, takes place in the mode of harnessing them to stage coaches, and such is the danger attending it, that very few travellers would hazard their lives in those vehicles were they at all sensible of the risk to which they are exposed. The evil alluded to is the practice of driving the wheel-horses without a brichin, in which case all the weight of the carriage in going down hill is resisted by the collar only, and when it is considered that all the pressure is acting upon the end of the neck, close to the withers, and consequently pulling the horse downwards towards the ground; and when it is also considered, that the major part of the horses used in stage-coaches are lame or tender in their feet, and scarcely able to support even their own weight, how much must the danger be increased when the weight of three tons is pressing against them down a hill covered with loose gravel or uneven in its surface. But independently of the danger of the animal being thrown down, all the weight before mentioned is resisted only by a small leather strap, which buckles the harness together at the upper part of the collar, and which in case of its breaking or becoming loose would let the hames fly asunder, and the horse would be immediately overrun by the carriage, and the consequences of such an accident may very easily be calculated. But strange as it may appear, all this danger is incurred every day, merely because the coachman considers a brichin to be old-fashioned, and beneath his taste and dignity.

Amongst other improprieties in the treatment of the horse during his labour, the following is a very common one, and well worthy of notice. It is very usual with inconsiderate riders to pull up a horse suddenly when on the gallop. The danger attending this practice is very great; for the shock which the limbs undergo, by being unexpectedly required to stop the momentum of the body instantaneously, is such as to expose the joints to the risk of dislocation, or even to fracture the bones.

A very extraordinary case of this descrip-

tion occurred a few years ago. A groom whilst galloping a horse in Hyde Park, pulled him up very suddenly. Immediately afterwards the animal was perceived to be lame, and apparently in all his legs. With some difficulty he was led to Mr. Moorcroft's infirmary, in Oxford-street, and being placed in a loose box such remedies were applied to the limbs generally as were thought necessary. On entering the box on the following morning the horse was discovered lying down, and making several fruitless efforts to rise, and on a close examination it was ascertained that the shank-bones of all his four legs were broken.

It is evident that the bones had not disunited immediately, by the horse having been able to walk from Hyde Park into Oxford-street, and which might be owing to the legs being kept in a perpendicular direction; but when the horse lay down, and afterwards attempted to rise, the legs being then in an horizontal or oblique position, the weight of the body, together with the exertion used in attempting to rise, was sufficient to separate the parts which had been cracked, and if it had been possible to have known the nature of the injury the horse might perhaps have been saved by suspending his body in such a way as to take off some of the pressure, and by preventing him from lying down until an union of the fractured parts had taken place. The foregoing instance of the bad consequences of the practice before-mentioned is by no means a solitary one; for it is within the recollection of the author of this treatise that he was once called upon to attend a post-horse whose thigh-bone had been fractured by being stopt suddenly in driving up to an inn-door. Yet this is constantly done by all coachmen and post-boys for the sake of a flourish, and for an opportunity of shewing their dexterity.

But even if its consequences are not so fatal as the two cases just alluded to, still it is evident that it must distress the joints, particularly the hocks, to a great degree, and more so when in harness, because the horse has then not only to stop his own body, but also the momentum of the carriage which is following him.

Before closing these observations it will not be irrelevant to offer a few remarks on the present mode of harnessing horses, as well as on the construction of harness in general. The collar is certainly the best adapted for the purposes of draught, because, if properly filed, it carries an equal pressure against the shoulder almost throughout, but the custom of fixing the ends of the traces to an immoveable splinter-bar defeats in a great measure the benefit which would otherwise arise from it, which consists in the motion of the collar adapting itself to the play of the shoulder, as they are alternately advanced one beyond the other during progression.

The horses, however, which run as leaders in stage-coaches have this advantage, because the swingle-tree bars are fixed in the middle, and are moveable in all directions, but some of the sapient coachmen who drive them seem determined to counteract this benefit, by fixing the inside traces of the two leaders across each other, and attaching them to the opposite bars, so as to prevent their lateral motion altogether. The danger of driving stage-coach horses without brichins has been before observed, and the legislature would do well to enforce the use of them in regard to those vehicles, by inflicting a heavy

penalty for the omission. The circumstance of fixing the swingle-tree bars to the end of the pole is also not without danger; for the pole is set so horizontal and low at that end to which the bars are attached, (for the purpose of its being in the same line as the traces of the leaders,) that when the wheel-horses are in the act of stopping the carriage, or of resisting its pressure when going down-hill, they must pull the end of the pole upwards, at the great risk of loosening it or breaking it in the socket, and the consequences of such an accident may be easily calculated, when the horses would be overrun by the carriage without the possibility of stopping it. A very considerable degree of danger is also attached to the present mode of hanging stage-coaches. Formerly they were suspended by a perpendicular spring at each corner, but the present system is to fix them with horizontal springs under the body.

In the former mode, when the wheels were going on the side of a road, and were consequently in a slanting or oblique position, the body still preserved its perpendicular direction by the swinging of the braces, and therefore did not incline sideways at the roof, as is the case when it is fixed upon springs bearing only on the centre, for whenever the carriage is going with one wheel higher than the other, the body is not only obliged to take the same direction, but absolutely hangs over more than the wheels, in consequence of its meeting with no support at the sides, and there is certainly a peculiar providence protecting these vehicles when all these circumstances are taken into consideration.

ON THE DISEASES OF THE HORSE.

THE STRANGLES

may with propriety be considered as generally the first disease by which the horse is attacked, and it appears to be so ingrafted in his nature, that he seldom or ever escapes it at some period of his life.

The French and other foreign writers have compared it to the small-pox in the human race, and as the small-pox is more incident to children than to grown persons, so it has been observed by these writers, that the strangles chiefly affects colts or young horses previous to six years of age, though this is by no means an invariable rule, as some have the disease at a much more advanced period. It is also compared to the small-pox because it never attacks horses more than once, whereas many other distempers, arising from common causes and accidents, will return as often as the causes which produce them.

It may however be considered a critical disease, by which something obnoxious to

the constitution is thrown off, and when it goes through its regular course thoroughly, the animal is generally improved in his health by its operation.

This disease generally begins with a swelling between the upper part of the jaw-bones next the throat, sometimes lower and immediately under the muscles of the tongue, attended with great heat, pain, and inflammation, and sometimes to such a degree that the horse is scarcely able to swallow till the tumour suppurates or forms matter. It frequently happens, that colts have the strangles whilst at grass, and the whole process goes on naturally without any assistance whatever. In this case, the abscess breaks of its own accord, a copious discharge ensues, and the animal generally recovers in the course of a few days. But it sometimes occurs, that in consequence of internal weakness from the colt having been starved in winter, as is but too often the case, the constitution has not strength sufficient to throw it out, and in that case the disease lurks in the habit, and sometimes produces so much general derangement as to destroy the animal in spite of every attempt to relieve him.

Those colts, however, that escape the strangles at grass, are liable for the most part to be seized when they are first taken up into the stable, and the tendency to the disease may be increased by the violence of exercise in breaking as well as by the pressure on the parotid glands when he is first reined up with the bridle. The first attack is usually denoted by a considerable degree of fever, and sometimes accompanied with a cough, and a loss of appetite, as well as a great difficulty in swallowing. When the swelling takes place on the inside of the jaw-bone, it is much longer in coming to maturity than when it begins more towards the middle. The most favourable situation is between the jaw-bones, because the swelling meets with less resistance, and is not so liable to press on the jugular vein as when it is situated at the angle of the jaw with the neck. Sometimes the parotid glands are affected, and swell up as high as the root of the ear. This is what is called the vives, in the language of the old farriers. It arises from the same cause as the other, and of course requires the same treatment. The degree of swelling under the throat is sometimes so great as to expose the horse to the danger of suffocation. In this case he stands with his nose out, his nostrils distended, and his breathing laborious and accompanied with a considerable noise in his throat. When the disease has arrived at this extraordinary degree of violence, and the tumour feels hard and not likely to form matter immediately, the last resource to prevent suffocation is the operation of bronchotomy, or cutting out a piece of the wind-pipe about the size of a shilling, through which aperture the horse can breathe with the greatest ease and safety. This operation has been frequently performed by Mr. Field, Veterinary Surgeon, Oxford-street, with the greatest success. The Strangles, however, seldom prove dangerous unless from the causes before-mentioned. On the first appearance of the disease, if the attack is violent, and the colt strong and full of flesh, it will be adviseable to moderate the inflammation by taking about two quarts of blood, and by opening the bowels by a gentle purge, such as the following :—

Aloes Barbadoes 3 drachms
Castile-soap . . . . 4 drachms
Ginger . . . . . ½ drachm
in a ball

If the colt is more than three years old, another drachm of aloes may be added. In the mean time, the swelling should be fomented frequently with a decoction of mash-mallows, as warm as the hand can bear, and a poultice made of bran may be also applied. The swelling will soon begin to point, that is to say, it will become softer in the most prominent part, but it should not be opened until nearly the whole of it is soft, and yields to the finger. When the tumour is opened, or breaks of itself, the orifice should be made of a sufficient size to let the matter discharge freely, and it may then be dressed with common digestive ointment, taking care first to press out all the matter, and to keep the surrounding parts of the orifice clean with a sponge and warm water.

Sometimes the strangles are confined principally to a discharge from the nose. In this case the disease is generally of longer duration, and occasionally ends fatally, by a gradual wasting of the animal, which dies consumptive, from the lungs being more or less affected. It has been said, that the strangles sometimes terminate in glanders, but such an opinion is very doubtful, if not totally unfounded. It is very possible for colts at grass to catch the glanders by coming into contact with any diseased horse that may happen to run in the same pasture, and the discharge may be at first mistaken for the strangles. The author has known two or three instances of this kind occur in pastures that have been situated by the side of a canal, as the boatmen sometimes take the liberty of turning their boat-horses to graze during the night, and many of them, it is well known, are glandered, and, on that account, are bought for a very small sum.

About twenty years ago a farrier at Birmingham introduced the practice of inoculating colts with the strangles, and, it is said, with success, although the practice does not appear to have extended to any other part of the kingdom.

The process was very simple, merely by a slight scratch within the nostril, and depositing a small quantity of matter from an abscess in a diseased horse. But it was attended with some risk in the hands of unskilful persons, because it was possible that the disease by which the matter was furnished might be the farcy, which is also a glandular disease, and the consequences of such a mistake would most likely be fatal.

At the close of the strangles, when the discharge has ceased, and the abscess is healed, the following purge may be given, provided the horse be not very weak and much reduced in flesh.

Aloes Barbadoes 4 drachms
Emetic tartar . . . ½ drachm
Castile-soap . . . . 2 drachms
Ginger . . . . . 1 drachm
in one ball,

to be given with the usual preparation of bran-mashes and warm water

ON LAMENESS.

Although, in nine cases out of ten, lameness is confined to the hoof, yet there are several circumstances which may produce it in other parts of the limb, such as the muscles, tendons, ligaments, and bones.

Diseases in the bones and joints of the leg may arise either from external injury, or from some internal cause. They generally consist of—

Splents,
Ring-bones,
Stiff joint or anchylosis,
Bone spavin,
Ossified cartilages of the foot

The first of these (the splent) is a very common disease, and more generally attacks young horses, especially if they are brought into hard work at an early age. The splent occurs more frequently on the fore-legs than on the hinder ones, and this arises probably from their being more exposed to concussion, from the weight of the body being thrown upon them during progression.

It most commonly appears on the inside of the shank-bone, sometimes in the middle, and sometimes just below the knee. It is also frequently situated immediately under the suspensor ligament of the leg, or under a tendon, and consequently displaces them more or less in proportion to its bulk. It is generally attended, and most probably always preceded by inflammation, and many of those secret and temporary lamenesses, with which young horses are often affected, may be attributed to this cause.

During the inflammatory state of the splent an increased secretion of bony matter is brought on in the part affected, and an enlargement of the bone consequently takes place. In this state the bone becomes extremely sensible, and the pain which the animal experiences from the concussion of the limb, when it alights on the ground, is sufficient to occasion lameness.

This sensibility of the bone will continue until the membrane which surrounds it, and which is called the periostium, yields, and adapts itself to the increased substance which is contained within it. The lameness is certainly increased if the splent takes place under a tendon or a ligament, for it in some measure forces them out of their natural direction, and thereby impedes their action until they adapt themselves to their new situation. In young horses, splents sometimes disappear of their own accord. In this case, they are absorbed by the natural action of the vessels. But it is most prudent not to wait for such an uncertain event. Warm stimulating embrocations certainly assist the absorption, but the most efficacious remedy is either blistering or firing. When blistering is resorted to, the following may be used with safety and advantage.

R— Cantharides pulverised half-an-ounce.
mix with sweet oil to the consistence of treacle.

Let the hair be cut off close, not only from the part affected, but also all round the leg, and the blister be well rubbed in with the hand for ten minutes. By applying the blister all round the leg a greater surface is acted upon than when it is confined to the part affected. When the blister is rubbed on, let the horse's head be tied short to the rack for twenty-four hours at least.

On the following day, the blistered part may be dressed with hog's lard, and the horse may be walked in a clean road for a few minutes to take off the stiffness. His head also may be loosed to the usual length of his halter, but he must be watched so as to ascertain that he does not attempt to bite the part, in which case his head must again be tied short to prevent it. A

A..... *Sandcrack*.....
B..... *Windgall*.....
C *Splent*
D..... *Ringbone*.....

EXPLANATION,

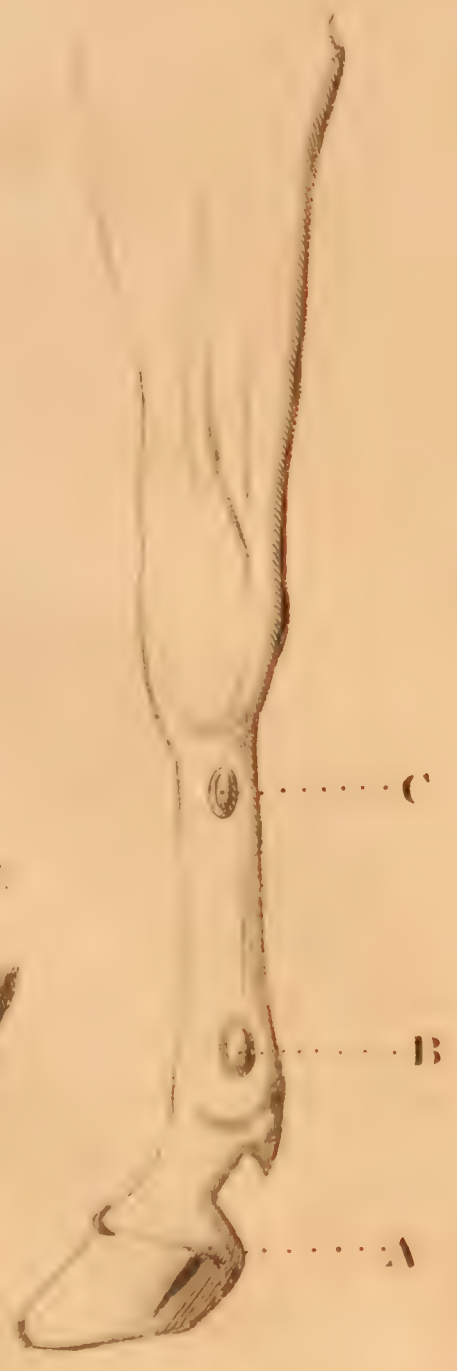
shewing the diseases of the Legs of Horses.

E..... *Curb*.....
F..... *Bone spavin*.....
G *Bleed spavin*
H *Capp'd Hock*...

Perfect Foot.

Contracted Foot

Section of the Foot.



Clip or Patent Shoe.

Hinge or Pivot Shoe.

Hunting horse Shoe.

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neck-cradle will hinder the horse from reaching his hind-leg, but it is of no use for a fore-leg. In a few days, when the inflammation arising from the blister has entirely subsided, a bandage may be applied over the part, which will, in some degree, assist the absorption of the bony matter.

THE RING-BONE

is an enlargement of the lesser pastern-bone, at a small distance from the coronet of the hoof, and sometimes occasions a stiff joint. It generally begins on the front of the coronet, and extends sometimes to the quarters.

The cartilages of the foot, which are situated just above the quarters, are also sometimes diseased and converted into bone. It is, however, a distinct disease from the ring-bone, though it is equally productive of lameness.

The ring-bone attacks both fore and hind-legs, but the ossification of the cartilages is generally confined to the fore-feet only. Repeated blistering will be necessary in either case, and even firing. But unfortunately the disease is very often suffered to gain ground from the lameness being attributed to the shoulder, and the remedies are consequently applied to the wrong part.

STIFF JOINT, OR ANCHYLOSIS.

This disease generally arises from some accidental wound in the joint, in which case the synovia, or liquid, which is supplied for the office of lubricating or keeping moist the surfaces of the heads of the bones in their action with each other, escapes outwards. This escape of the synovia, "or the running of joint-oil," as it is called by the common farrier, occasions great irritation and inflammation, and if the orifice of the wound is not soon closed, the membranes begin to thicken, bony matter is thrown out from the heads of the bones, thereby uniting them in one mass, and the use of he joint is thenceforth irrecoverably gone. It is therefore evident that no time ought to be lost on such an occasion. The common practice with farriers is to introduce a tent dipped in some strong stimulating mixture into the wound, but such a practice is most injurious, because it prevents the lips of the wound from closing, which is the first object necessary in order to stop the discharge.

The inflammation from a wounded joint is very different to that which takes place in any muscular part, and requires a very different mode of treatment. For as ligaments are not so vascular as muscles, they are consequently much slower in forming granulations, or, in other words, they possess not so perfectly the powers of regeneration. When a joint, therefore, is wounded and perforated, the lips of the wound should be touched with a little butter of antimony, or they may be seared slightly by the application of the hot-iron. The external surface may then be covered with a pledget of fine tow, and the whole kept from the air as much as possible. No poultices should be applied to the part affected, but the adjacent parts may be occasionally fomented to take off the swelling and stiffness. The fomentation may consist of marshmallows boiled in water, or bran and water, as warm as the hand can bear it. The butter of antimony may be applied every other day until the wound is closed—a very small quantity on the end of a feather is sufficient, and it should by no means be introduced within the wound.

THE BONE-SPAVIN

is generally situated on the upper end of the shank-bone of the hind-leg, sometimes below and sometimes on the middle of the hock-joint. Horses that stand with their hind-legs much bent at the hock, or that are what is called cow-hocked, are more subject to this disease than others, because the stress is increased upon that part by its angularity. The lower part of the hock-joint is composed of several small bones, which fit together in one common cavity. These bones possess some degree of distinct motion, which although it is very trifling, is still sufficient to increase the elasticity of the joint. When the spavin is once formed, these bones are generally united into one solid mass, and their former elasticity is consequently lost, in which case lameness ensues, and as it is impossible to disunite these bones again after they are once diseased, it shews the necessity of early means being resorted to for the purpose of a cure. The lameness arising from this disease will shew itself generally before the enlargement of the bone takes place, and this is the only period when a cure is likely to be obtained. But owing to an almost universal propensity in the common farriers to ascribe all lameness in the hind-legs to some affection of the stifle, or the whirl-bone, the true seat of the complaint is overlooked, and so much time is wasted in applying the remedy to the wrong part, that the favorable period for removing the spavin escapes, and the lameness is irrecoverable by any means whatsoever. Many violent and tormenting systems are adopted in this case, such as strong caustics, and even the mallet and chissel, but owing to the impossibility of separating the small-bones which have been united into one mass, all such attempts will be fruitless. In the first attack of a bone-spavin, during its inflammatory state, the lameness disappears after the horse has been exercised for a short time, but returns again when he is at rest. And this circumstance distinguishes it in a great degree from lameness in any other part of the limb, which generally increases from exercise. Hence, whenever the lameness in a hind-leg disappears from exercise, it may fairly be supposed to be seated in the hock, although the spavin has not yet made its appearance, and this is the only period when any attempts at a cure are likely to be attended with success. The same blister may be used as has been recommended in the case of the splint and ring-bone, and it will be attended with increased effect if it be applied all round the hough, so as to raise a superficial inflammation to as large an extent of surface as possible. The same precautions in regard to tying up the horse's head, and dressing the part with hog's lard to be attended to.

LAMENESS IN THE LIGAMENTS AND TENDONS,

may be comprised under the following heads.

Strains of the sheath of the tendons,
Rupture of the suspensor ligaments of the legs,
Thorough pins,
Blood spavins,
Curbs,
Windgalls,
Injuries in the coffin-joint,
Injury in the whirl-bone,
Injury in the stifle.

The strain of the sheath of the tendons is commonly called, "Strain in the back

sinews," and generally occurs just above the fetlock-joint.

It is produced either by a violent exertion, or by galloping on a hard road, and sometimes by a blow from the toe of the hind-foot, which may happen in hunting over a heavy country, where the fore-leg is kept too long on the ground by sticking in the clay. The injury, however, seldom exists in the tendon itself, but is more commonly confined to the sheath which surrounds it.

If the injury is of a recent date, and is attended with much inflammation in the part affected, it will be necessary to abate it by fomentation with bran and water, or the application of a bran poultice for two or three days; and at the expiration of that time, if there is no heat remaining in the part, astringent lotions may be used, such as the following,

R—Crude sal ammoniac . . 1 ounce
Vinegar . . . . . 1 pint,
mixed in a bottle.

The part may be rubbed with some of this mixture twice daily, and a bandage dipped in cold water may be bound round the leg moderately tight, or camphorated spirits of wine may be used together with the bandage, and if neither of the above should prove sufficiently stimulating, the following may be resorted to, viz.

Cantharides pulverised . . 1 drachm
Spirits of wine . . . . 2 ounces
mixed.

The above embrocation may be rubbed on the part, but the horse's head must be tied up for a few hours, whilst it is operating, which it does as a very mild blister. The horse may have walking exercise, but must on no account be worked during the process, nor even for some time after he is recovered, as tendons and ligaments, when once strained, are very easily injured again, and require a considerable length of time to recover their original tone and firmness.

The rupture of the suspensor ligament is what is called breaking down. This is a much more serious accident than the former, as it is seldom or ever cured. The disease has generally and improperly been supposed to occupy the tendons; but in fact is totally unconnected with them. When these ligaments are ruptured, the fetlock-joint, instead of preserving its natural oblique position, sinks down and nearly touches the ground. But still the tendons preserve the power of bending the leg, which they could not do if they were ruptured. As it is almost impossible to confine the limb in such a way as to bring the ends of the divided ligament into contact with each other, and thereby to facilitate their re-union; the limb never recovers the natural position of the fetlock, and as a great deal of mechanical power is lost from that circumstance, of course the animal decreases much in value. The same remedies may be resorted to as in the case of strained tendons; and, lastly, firing; but it is seldom productive of much benefit.

THE THOROUGH PIN

is a soft flexible swelling, appearing on the two opposite sides of the hock-joint, from whence it gets its name of Thorough Pin, being supposed to go through the joint. When pressed by the finger it yields and disappears, but when the finger is removed it immediately returns. It consists of a par-

tial relaxation of the ligament which surrounds the joint. It very seldom occasions lameness, although it is a sign of the hock having been distressed by too much exertion. The blistering liniment (Cantharides and spirit of wine) will be the best application.

THE BLOOD SPAVIN

is a relaxation of that part of the thigh-vein which passes over the bend of the hock. It is a disease which very rarely occurs, but there is another disease which is commonly mistaken for it, and which is called a bog-spavin.

The blood-spavin is of no consequence whatever, it being nothing more than a trifling deformity, and never occasions lameness. It has, however, been a practice with some farriers to take it up by ligature, a practice which creates more inconvenience than the disease itself, until the smaller branches of the vein become sufficiently large to supply the loss of the main trunk, in carrying on the circulation of the blood through the limb. The bog-spavin consists of an inflammation and enlargement of the bursa mucosa, or the membraneous cells in which the synovia is contained, and this swelling, by forcing out the vein which passes over it, has given rise to the mistaken idea that the disease existed in the vein. Repeated blisters are in this case also necessary.

THE CURB

shews itself by a swelling on the back part of the hock.

The disease consists of a strain in the sheath of the tendons, through which the tendons pass in their course down to the foot. It occasions lameness during its inflammatory state, and it attacks young horses, especially those that are what is termed—cow-houghed, more than any others. The blistering liniment may be applied, and in old and inveterate cases firing may be resorted to.

WINDGALLS

are of the same nature as the thorough-pin and bog-spavin. They consist of small puffy swellings just above the fetlock-joint, and arise upon both the fore and hind-legs, but most frequently on the former. They are produced generally by working the horse too young, or by immoderate labour, and, perhaps, in a great degree, by the bad construction of the pavement of the stalls which obliges the animal to stand up-hill, and consequently keeps the joints on the stretch, at a time when they ought to be at rest. Blistering and a winter's run at straw-yard are the best remedies.

LAMENESS IN THE COFFIN-JOINT

may be considered generally as a ligamentary lameness. In this disease the horse usually stands with his toe pointing forwards so as to keep the pastern in a strait line with the leg, and thereby to take off the tension of the ligaments. Early remedies are essentially necessary, for if the complaint exists any great length of time it is almost always incurable. In the last stage of the disease the ligaments which unite the coffin-bone with the lower pastern-bone become ossified and the use of the joint is lost entirely.

It also frequently happens that the end of the flexor-tendon of the leg, which is attached to the under surface of the coffin-bone, and which is called the aponeurosis of the

tendon, becomes ossified to that extent as to impede its action within the circular sheath by which it is inclosed.

Repeated blisters round the coronet furnish the only probable chance of a cure.

LAMENESS IN THE WHIRL-BONE, OR ROUND-BONE.

This part constitutes the hip-joint, and it may sometimes, though very rarely, occur that the ligaments which confine the head of the thigh-bone in its socket are injured. The hip-joint is surrounded by such large and powerful muscles, that it seems almost impossible that it should sustain any injury. When this, however, is the case, the horse drags the leg after him on the toe. Camphorated spirits of wine, or the blistering liniment, will here be useful.

Lameness in this joint is very often mistaken for lameness in the hock, but the signs of it are totally different.

LAMENESS IN THE STIFLE

very rarely occurs except from a blow or a kick from another horse. The same treatment as in the case of the whirl-bone may be resorted to.

THE STRING-HALT

consists of a sudden catching up of the hind-leg higher than is necessary during progression.

The cause of this infirmity is exceedingly obscure, and it is difficult to account for it on any other principle than that of the antagonist or extensor muscles having lost in some degree their natural power, and thence being unable to counterbalance the action of the flexor-muscles when the limb is in motion. It is considered as incurable.

LAMENESS IN THE SHOULDER

comes more properly under the class of muscular disease. It is a very favourite seat of lameness with grooms and farriers, especially when no visible cause appears in any other part.

Whenever it does occur, (which is not often) it is generally produced by the over distension of the pectoral muscles, from the leg slipping sideways from the body. It is easily distinguished from lameness in any other part of the limb by the peculiar motion, or rather the want of motion in the leg, for the horse drags his toe, and in order to make up for the deficiency in the bending of the knee, he moves his foot in a circle outwards at every step. On the first appearance of the complaint, a fomentation of bran and water, or camomile flowers, applied to the lower part of the chest, within the arm, will be found useful. It may afterwards be rubbed with camphorated spirits of wine, or a drachm of oil of origanum, mixed with two ounces of sweet oil. Rest will also be necessary to promote a cure.

Although lameness in general arises from accidental causes, still it is certain that a particular natural formation of the limbs will render the animal more subject to lameness of one kind or another. Thus horses with short pasterns, and whose legs are much inclined under the body, are most subject to bony enlargements, such as ring-bones, splents, and ossification of the cartilages of the foot, and as these diseases arise in a great measure from concussion, it is evident that a horse with short pasterns must experience a greater degree of concussion from their possessing less elasticity than those that are longer.

Short pasterns also are generally accompanied with contracted heels from the weight of the body being thrown principally on the toe. On the other hand, horses with long pasterns are more liable to ligamentary lameness than others, but they are less subject to those diseases of the bones before mentioned.

Horses that are cow-hocked are more frequently affected with spavins, curbs, and thorough pins than others. In all cases of lameness the tendency to disease is much increased by the bad construction of the stall of the stable, and especially by working the animal when too young. For it is a common practice to begin riding them at three years old, and in consequence of such an injudicious custom it is a certain and lamentable fact, that there are very few horses perfectly sound at six years old.

For hunters, and other horses that work hard, it is a good practice to bandage their legs at night, as it takes off a good deal of the uneasiness arising from the excessive action which the tendons have undergone during the day. But previous to applying the bandage, the legs of hunters should be thoroughly searched for thorns, and which should be extracted as soon as possible, as thorns very often create great inflammation and swelling, especially if near any of the joints. In case they are inserted so deep as not to be extracted, a poultice should be applied, which, by softening the skin, will greatly assist their removal.

If the thorn remains in the limb for any great length of time, the skin thickens around it, and forms a kind of bag, and in this state the thorn, so long as it remains stationary, occasions but little inconvenience.

ON WOUNDS.

If there is one part of the old practice of Farriery more defective and injurious than another, it is that which relates to the treatment of wounds, and this is the more extraordinary when we consider that there must be less doubt and uncertainty in cases which are visible to the eye, than in those which are internal, and, consequently, less apparent.

If any doubt should arise respecting the justice of this remark, the reader may be convinced by turning to several popular works on Farriery, of which the following is a pretty good specimen. In a book upon Farriery, published under the name of Francis Clater, the following observations upon wounds will be found. Speaking of cases where a horse has been staked in going over a fence, he says "it will be proper to examine the place where the accident happened, in order that the operator may be better able to judge of the nature and extent of the wound and its consequences." This is certainly a very wise proceeding, especially if the place happens to be at any considerable distance, in which case the poor animal must remain with his wound undressed until the return of the practitioner.

But it becomes a question whether his absence is not more desirable than his return, when the following plan of treatment is taken into consideration, *Ecce signum!*

R—Compound tincture of benzoin, and tincture of aloes with myrrh, of each one ounce

Nitrous acid *(aqua fortis)* two drachms, mix in a bottle for use.

After sewing up the wound, the above is the

application which Mr. Clater recommends by the way of *healing it by the first intention.* For, he says, "this will be found a valuable tincture for wounds of every description, where a cure is intended to be performed without bringing it to a state of suppuration." It would be an insult even to the most uninformed reader in the action of medicine, to point out the gross absurdity of applying one of the strongest destroyers of animal substances to a wound which is intended to be healed by bringing the divided parts together as close as possible. Yet such is the basis of the practice of nine-tenths of the common Farriers throughout the kingdom.

In all recent wounds the first step necessary is to probe them, to ascertain whether any extraneous substance, such as splinters of wood, be left in the inside. These should be instantly and carefully removed, for the wound cannot heal whilst any substance of that description remains within it; and, indeed, the inflammation is sometimes so much increased from that circumstance, that mortification ensues, and, with it, the death of the animal. If the wound arises simply from a cut, or from laceration, without being accompanied by any bruise, the divided edges should be brought together as soon as possible, by sewing them with common brown thread and the application of a bandage, and the external inflammation may be moderated by simple fomentations of bran and water. For there is generally inflammation enough in the injured part to carry on the healing process without having recourse to stimulating applications, and caustics are wholly unnecessary and improper in all fresh wounds. But the almost invariable practice of country Farriers is to introduce a tent of tow dipped in some strong oils, in which case the inflammation is increased, and nature, in making fruitless efforts to close the wound, whilst it is thus kept asunder by the interposition of the tent, is excited to an excessive degree, and a great quantity of proud flesh, or superfluous granulations, arise at the edges, which soon become diseased, and that which was at first but a simple healthy wound is converted, by injudicious treatment, into a foul and callous ulcer.

The benefit of healing wounds by the first intention is particularly manifest in cases of overreaches on the heels of the fore-feet from the shoes of the hind-feet. For in these cases nothing more is necessary than to wash the part thoroughly with warm-water, so as to remove all sand or dirt whatever, and then to keep the divided parts together by a bandage, and not to remove it for three or four days at least. The coagulable lymph will then be thrown out from the mouths of the vessels and the surfaces will be found glued, and this constitutes what is called, healing by the first intention, and this process may generally be adopted with success where the wound is of a simple nature. In compound wounds, where the bone has been injured as well as the muscular parts, it is more difficult and sometimes impossible to heal by the first intention; first, because the consequent inflammation is more violent, and, secondly, because the fractured parts of the bone become, when detached, extraneous substances, and must be brought away before the wound can thoroughly heal. Hence it sometimes happens that the surface of the wound heals whilst the bottom or internal part is unsound, owing to the circumstance of the bone not

having exfoliated, and the irritation being still kept up, a fresh degree of inflammation ensues, and the wound suppurates and breaks out again.

In this case (and in this only) the mouth of the wound may be kept open by the introduction of tents; and if the abscess has not a sound, healthy appearance, such caustic applications may be used as will destroy the diseased surface, and produce a healthy action in the part, which is always manifested by red granulations, and the secretion of pure white matter of a proper consistence.

But the great error which prevails amongst the common Farriers, consists in the immoderate and injudicious use of violent caustics, and in employing stimulating applications to a fresh wound, with the view, as they profess, of making it discharge thick matter immediately. Now, as it generally requires at least four days to elapse before a fresh wound can form matter of that description, it follows, that all attempts to produce what the course of nature has denied, by violent and stimulating dressings, can have no other effect than to increase the inflammation to such a degree as not only to disturb the natural process, but sometimes to produce a mortification and the death of the animal. For there is always sufficient action in a wounded part for its own restoration; and most veterinary practitioners who are well-grounded in the science of their profession, know that this action produces granulations, or what is termed proud flesh, so abundantly as to require constant attention in keeping it down either by pressure or by escharotics. It is therefore evident, that it is in general more necessary to moderate the action of a fresh wound than to increase it. The importance of a wound will depend much on its situation, and on its connection with the vital functions of the principal viscera, for the nearer it is to a vital part the more dangerous it is.

Wounds in the joints are healed with difficulty, as well as those which happen in any part that is subject to constant motion, as in the lungs, or belly. Other circumstances also increase or diminish the danger. If a principal artery in a limb is divided, there will be danger of a mortification from the limb not being supplied with its usual quantity of blood. The dividing of a tendon takes away the motion of the muscle to which it belonged. A wound in the spinal-marrow causes death if it occurs above the branch of nerves which go to the heart and lungs, and if below it produces a palsy and want of motion in the lower parts. An excessive suppuration and discharge of matter sometimes weaken the patient so much as to bring on hectic fever, and death. Great loss of blood may occasion a dropsy. When a small artery is wounded, if it be quite divided it retracts, and the bleeding generally stops, especially if the artery has been torn asunder, and not divided by a sharp instrument. Some very extraordinary proofs of this fact have occurred in cases where the arm of a man has been torn off from the shoulder, by accidentally being entangled in machinery; and in this case the artery, although of very considerable magnitude, has collapsed, and no hœmorrage has ensued. When the artery is punctured only, the blood will continue to flow from the wound, except a ligature is applied above the punctured part, for it is hardly safe to trust to pressure alone.

When a nerve is wounded, it is often

attended with the most dangerous consequences, such as fever, and locked-jaw. It is sometimes considered a good practice in this case, to divide the nerve entirely; but it seldom or never succeeds in removing that dreadful complaint. The accident is soon discovered by the sharp ichor which issues from the wound, and excoriates the adjacent parts. When a tendon is wounded the same violent symptoms do not attend it as in the former case. Swelling takes place to a certain degree, and a very considerable inflammation and the restoration is never so rapid as it is in regard to wounded muscles. The proper mode of treating wounds of this description is to foment them with warm fomentations of bran and water. The most common applications, however, to wounded tendons have been of the spirituous kind, but they are for the most part improper.

The principal inconvenience which attends a wounded tendon arises from the constant discharge of the fluid which is secreted within its sheath, and which is somewhat similar to the synovia or joint-oil.

If the wound shews no disposition to heal quickly, the edges may be touched with butter of antimony, on the point of a feather, which will stimulate it, and produce that degree of action in the tendinous fibres which is necessary to heal it. A moderate degree of pressure must be used, and the surface may be covered by a large pledget of tow with digestive ointment, and bound on with a bandage. Poultices are useful for the first day or two to abate the inflammation, but they should not be continued too long, as they produce a flabbiness and relaxation in the part which prevents it from healing.

Wounds in the joints, though apparently small and trifling, are sometimes attended with great danger. The consequences are generally great irritation, arising from the constant discharge of synovia, and attended with symptomatic fever in a greater or less degree.

In cases of this description it is almost the invariable practice of common Farriers not only to introduce a tent into the wound, but even to syringe some stimulating injection into the cavity of the joint. The result of this practice is pernicious in the highest degree; for the tent, by keeping the edges of the wound separated from each other, prevents it from healing, and in conjunction with the action of the stimulating injection keeps on the discharge of the synovia, and by increasing the irritation, and consequent fever, almost always occasions the death of the patient. The first object to be attended to in wounded joints is to heal the wound as soon as possible, and the reason of their being so difficult to be healed arises probably from the synovia in its discharge washing off the coagulable lymph which is thrown out by the wounded part for the purpose of healing. The only method to overcome this difficulty is to increase the secretion of lymph by exciting the edges of the wound, either with butter of antimony, or the actual cautery applied slightly to the surface, which last practice, although it appears at a first view harsh and barbarous, is nevertheless the shortest and most effectual mode of relief, and seldom requires a second application. Until the wound is healed it is necessary that the horse should move as little as possible, because the discharge of the synovia is increased every time he bends the limb. When it is perfectly healed a pledget of tow, dipped

in the following lotion, may be applied to the joint, and bound on moderately tight with a flannel bandage: viz.

Golard's extract . . .	1 drachm.
Vinegar	half-a-pint.

To be mixed in a quart bottle, and filled up afterwards with water.

In cases wheer the wound is a long time in healing and the animal survives it, it sometimes happens that, in consequence of the protracted inflammation, bony matter is thrown out in the cavity of the joint, and the heads of the bones uniting with each other a stiff joint ensues, and beyond the possibility of ever being removed. Amongst wounds in the joints may be classed those of broken knees, which are sometimes of very serious consequence.

If the injury be but slight, a fomentation with warm water, or a decoction of marshmallows, will in general prevent much inflammation, after which a pledget of tow dipped in some golard water may be applied with a bandage. But if the cut be very deep into the joint, a poultice of bran may be used for two or three days, and afterwards the following dressing, viz.

Verdigrease	2 drachms.
Common digestive ointment	2 ounces.

This should be mixed well on a marble slab with a spatula, and the wound may be dressed with some of it daily. The best mode of applying the poultice is by means of the leg of an old worsted stocking, which may be drawn up over the knee and tied with a bit of list both above and below, but care should be taken that the ligatures be not too tight, which would tend to increase the swelling of the part. In case the granulations, or what is called the proud flesh, should arise too abundantly, the part may be touched once every other day with butter of antimony, as long as any necessity remains for using it.

Broken knees are sometimes very tedious in their recovery, owing to their being bruised as well as cut; but in all cases the application of strong caustic dressings is highly improper, and not only retards the cure, but generally leaves the part hard and callous, and less capable of a free motion in the joint.

Ulcers sometimes occur in the neck from bad management in bleeding. They are generally preceded with swelling and hardness in the skin along the course of the jugular vein up to the part where it divides into two branches, the one entering the upper part of the neck, and the other running under the jaw and from thence over the side of the face, forming what is called the angular vein.

If fomentations are used early and very frequently, the swelling will generally disappear, but if any spirituous embrocations are applied, or caustic introduced into the wound, the inflammation will be thereby increased, and suppuration must ensue, the abscess breaking out in different places up the neck. When the wound has arrived at this state, then, and then only, will caustics be necessary. Each abscess may therefore be touched with a little butter of antimony, but a bran poultice must be applied regularly every day until the swelling and hardness of the skin abates.

Whenever the injury has proceeded to the length above-mentioned it is generally attended with the loss of the jugular vein, and

although the smaller branches enlarge in time sufficient to carry on the circulation, yet the horse can never afterwards be turned to grass without experiencing considerable inconvenience, because the blood does not circulate through the head so freely, when the principal vein on one side of the neck is lost. Hence this loss of the vein may very justly be considered an unsoundness, and rendering the horse liable to be returned, unless the defect be specified.

Gun-shot wounds, although they seldom occur except on military service, ought to be treated upon in a work of the present description. An author of some celebrity makes the following judicious observations on this subject, viz. "Gun-shot wounds can be considered in no other light than as contused wounds. In those made by a musket, or a pistol-ball, the most immediate considerations are to extract the ball or any other extraneous body which may have lodged in the wounded part, and to stop the hœmorrhage, if there be an effusion of blood from the rupture of any considerable artery. It is frequently necessary to enlarge the wound, in order to extract the ball, and if it has gone quite through (provided the situation of the part wounded will admit of its being done with safety) the wound is to be laid open freely through the whole length of it, by which means any extraneous body will be more readily removed, and the cure facilitated. In order to get at the ball, or any other foreign matter, probing is to be used as sparingly as possible, and this must evidently appear necessary to every one who will only consider the nature of the symptoms attendant on penetrating wounds of the chest or the belly, either from a bullet or a sharp instrument; the thrusting in a probe to parts under such circumstances being unavoidably a fresh stab on every repetition of such practice. If probing be necessary, the finger should be preferred as the best and truest probe, where it can be used, and where it cannot, a bougie may answer the purpose. If a ball, or any other foreign body, happens to be lodged near the orifice, or can be perceived by the finger to lie under the skin, though at some distance from the mouth of the wound, we should cut down to it, and take it out; but when it is sunk deep, and lies beyond the reach of the finger, it must appear evident, upon the least reflection, that the thrusting first a long probe in quest of the bullet, and then, as has been practised likewise, a larger pair of forceps, either with or without teeth, into a wound of that kind, though with a sort of certainty to extract it, must either contuse or irritate and inflame the parts to a greater degree, and consequently do as much or more mischief than the ball did at first by forcing its passage such a length of way. And should the forceps, at the same time, lay hold of any considerable artery or nerve along with the ball (which can scarcely fail to happen) what injurious consequences must attend such a proceedings. Nor would attempts of this sort be less injurious, in case a bullet should happen to be lodged in the cavity of the belly or the chest. Such attempts are the less necessary because a great number of instances have occurred, where balls have quietly lodged in several parts of the body, till, after many years, they have worked themselves a passage towards the surface, and were very easily extracted; and many, where balls have been entirely left behind

without occasioning any inconvenience. In case the wound be occasioned by a musket or pistol-shot, and of course but small, it will be deemed necessary to dilate it without delay, provided the nature of the part will admit of this with safety; for in wounds near a joint, or in very membraneous or tendinous parts the knife, as well as forceps, should be put under some restraint, nor should any more opening be made than what is absolutely necessary for the free discharge of the matter lodged within. Where the wounded animal has not suffered any great loss of blood (and this is generally the case) it will be adviseable to open a vein immediately, and take a considerable quantity, and to repeat bleeding on the second, or even the third day, should occasion require. The letting of blood in some of these cases is attended with great benefit, for it prevents a good deal of inflammation, and lessens any feverish attack, forwards digestion, and seldom fails to obviate imposthumations, and a long train of complicated symptoms which are apt otherwise to interrupt the cure, and often to endanger the life of the patient. Where the feverish symptoms run high, and even when there is almost a certainty that matter is forming, bleeding is very frequently of great advantage. If it so happen that a gun-shot wound has penetrated any of the large joints, and in passing through them fractured the ends of the bones, it will then be found for the most part impossible to effect a cure, or even to save the life of the patient; and therefore it is the best and most humane course to destroy the animal to save him from pain and misery."

Gibson, in his treatment of gun-shot wounds, makes the following remarks: "Where a ball," says he, "has penetrated quite through any part, both orifices must be kept open till the wound is filled up with new flesh, and no bad symptoms remain, as pain, swelling, or inflammation, which in those gun-shot wounds that enter the bones as well as the flesh, would denote the existence either of extraneous matter, or of splinters, which must be removed by gradually enlarging the most convenient orifice. But in most internal wounds this is unnecessary, because the bullet can seldom be brought out the same way by which it entered. I have known leaden bullets lie many years in men, especially in the abdomen, without any great pain or danger, and those that have gone deep in the flesh and beyond reach, make their way sometimes from places where they could never be expected to appear. Many extraordinary instances of this kind are upon record in the surgical transactions of different parts of Europe." He says further, "I have known bullets pierce through both flesh and bones in men, making a round smooth passage like an auger hole, and been as easy of cure as a flesh wound, except when they have penetrated or grazed the joints. In these cases horses may be rendered useless even though the wound be cured.

If the bones are splintered the case will always be dangerous, especially if the practitioner has not had experience to know both the time and manner how they are to be treated; for loose splinters should not be suffered to remain where their continuance would endanger a gangrene, nor be removed while their removal would occasion an excess of pain. But in such circumstances emollient poultices are the most likely to prepare

them for separation, so as they may at length be brought away with little or no inconvenience only by the use of a common digestive. If a bullet, a splinter, or any other extraneous body that has been driven a great way downwards from its entrance, can be felt on the outside, a counter opening in that case will be necessary, and this both facilitates the cure, and renders it expeditious. But in all such operations regard must be had to the situation of the part to avoid as much as possible wounding the nerves, tendons, or larger blood-vessels.

In dressing gun-shot wounds it is necessary to avoid all unctuous applications which encourage the growth of fungous flesh. The wound should be dressed with turpentine mixed with honey or the yolks of eggs. This is the most safe and efficacious method in the gun-shot wounds of horses, and if fungous flesh arise, to which some constitutions are more liable than others, the part may be strewed with a little red precipitate finely powdered, or dressed with lint dipped in vitriol water, and squeezed dry, or precipitate may be mixed with the digestive, and this in a suitable proportion to the luxuriancy of the granulations. When a bullet chances to enter the cavity of the body, and to be lost there, if it happen to slide on the principal viscera without wounding them, especially those of the abdomen, there will scarcely be any thing further necessary than to cure the external wound.

If a symptomatic fever arise, which often happens in gun-shot wounds, bleeding is proper with laxative clysters, and the diet should be chiefly scalded bran with water-gruel. Sometimes nitre, cream of tartar, and such like opening and cooling remedies, may also be given: and if the wound becomes an ulcer, which frequently happens in gun-shot wounds near the joints and membranous parts, it must be treated according to the directions laid down for the cure of ulcers in general.

Previous to closing our observations on wounds, it will be necessary to describe the symptoms and effects of that disease, which is denominated

LOCKED-JAW,

Because it very frequently arises from wounds in the foot, in consequence of a nail being driven into the quick, or from nicking or docking. It sometimes, however, arises from cold, but the symptoms are always the same, and generally fatal. The progress of this disease is not always equally rapid, but it commonly begins with some degree of fever. As it increases, the neck becomes stiff, and the head fixed and immoveable, and somewhat elevated, with the ears erect and motionless; there is a general contraction of the muscles of the face, particularly about the mouth, so that the teeth appear very visible: the eyes also express a peculiar animation and anxiety, and the membrana nictitans, or hawe, is drawn partly over the eye-ball; the nostrils are distended, and the animal breathes with considerable difficulty: the jaws likewise become fixed. From this state the disease rapidly increases, until the legs become nearly incapable of motion, from the impossibility of bending the joints: the tail also is fixed and erect.

In the course of twenty years practice the author of this treatise has seen many cases of locked-jaw, but never one of them cured. When the disease arises from a wounded

nerve or tendon, or from nicking or docking, it has been recommended to enlarge the wound, and in the latter case, to cut off a fresh portion of the tail. These practices, however, are ineffectual, because the effects of the injury are no longer local, but having been communicated to the general nervous system, a diseased action is brought on throughout the nerves, totally independent of the original local injury, and which action continues, even if the limb be cut off far above the wound, as is well known in cases of locked-jaw in the human subject. It seems, therefore, most rational that all attempts at relief should be applied as directly as possible to the brain itself, from whence all the nerves originate.

Various systems have been pursued, and both cold and hot bathing have been resorted to, but without success. Opium has been given in large quantities both by the mouth and by clyster, but without any apparent effect. The common opinion that the locking of the jaws and the being incapable of receiving any sustenance is the cause of the animal's death, is a very erroneous one; for a horse would live treble the time without food that they do live when afflicted with this disease. The fact is, that the animal dies by suffocation as soon as the rigidity reaches the muscles of the ribs, in which case their expansion is prevented, and the breathing is in consequence entirely stopped. It is probable also that the action of the heart and arteries is suspended from the same cause. The contraction and rigidity of the muscles evidently begin at the head, in which is the seat of the brain. Hence the jaws become fixed, and immoveable. But it is useless to force them open for the purpose of giving medicine even if it were practicable, because as the same contraction exists in the æsophagus, or gullet, as well as in the epiglottis, the animal could not swallow, and would incur the risk of being suffocated by the substances, or fluids, received at the mouth, entering the windpipe.

A modern Veterinary author treating upon this subject, writes thus: "Notwithstanding we have not yet been lucky enough to witness the success of the application of cold water to the surface of the bodies of horses labouring under locked-jaw, our hopes of its beneficial tendency are still sanguine, and we are induced to think the more favourably of it from the encouraging reports communicated to us by others.

"In similar diseases of the human subject, its use has been attended with the most beneficial consequences. Immersion in cold water is readily accomplished, but perhaps the most efficacious method would be that of pouring large streams of water on the animal after the manner so successfully practised by Mr. Moorcroft. This process should be continued for a considerable time, perhaps ten or fifteen minutes, and should a remission of the spasm ensue, it will afford no little encouragement in the pursuit, and in this interval of ease a favourable opportunity will present itself of passing medicine by the gullet.

"When the complaint returns with any degree of violence, the cold water is to be repeated. The longer and the more frequent the remissions become, the nearer of course will be the prospect of a cure. Immediately after the application of the cold water, let the skin undergo a diligent and general friction until it is dry; let the animal be then

moderately closed. We have already hinted that horses suffering from the above disease have generally the inclination, though perhaps they have not the power, to eat. They are therefore to be supported by substantial gruel, given, when incapable of swallowing, by the anus. If this circumstance is sufficiently attended to, the animal may be kept alive many days.

"Here, however, a question occurs, whether in any case of locked-jaw, either in the human or the brute species, the throat is absolutely inaccessible to nutritious fluids. We think not; but that milk, gruel, broths, &c. might be conveyed by injection between the intervals of the teeth, and drawn in by the patient, provided the power of swallowing remain.

"We have here endeavoured to describe such means of relief as have appeared to us to offer the greatest prospect of success.

"All rational experiments towards the removal of a malady usually fatal in its termination, are certainly praiseworthy, and he who is the most fortunate in his researches will have a weighty claim indeed on the gratitude of society. The introduction of mercury into the system in persons affected with spasmodic diseases, by frictions on different parts ot the body with strong ointment of quicksilver, so as to produce and support a degree of salivation, has been sometimes attended with success. We have never heard of this experiment being tried on the horse, but certainly it leserves the practitioner's attention. The warm-bath in spasmodic diseases has many advocates. Perhaps it might be beneficial, if it could be used to that extent with the horse which it admits of with the human subject. When locked-jaw is conjectured to have arisen from the operation of docking, it is usually considered prudent to remove a fresh portion of the tail, afterwards applying such dressings as are most likely to hasten a free discharge of matter from the stump. The same dressings may be used when nicking is suspected to be the cause of the disease, and the extremity may also be surrounded with a large poultice. Few owners of saddle-horses, however, would allow of a total amputation of the tail, and probably even that would not be followed by the slightest benefit. When the disease arises from the foot having been pricked in shoeing, the wound should be opened freely to the bottom with a drawing-knife, the actual cautery may then be applied, and the part dressed with a little turpentine. All punctures should be laid well open and digestives applied, and when an inflammation and swelling attend, fomentations are requisite. Let it be remembered, however, that these topical means alone are never to be depended upon, but ought invariably tobe combined with internal medicine. Should it be imagined that the bots or other worms lodged in the stomach or intestines, have produced the disease (a circumstance however which it is extremely difficult to determine) a drachm of calomel may be given in one of the balls, or an ounce of strong mercurial ointment may be dissolved in the first anodyne clyster.

"In conclusion we may observe, that we have witnessed the recovery of a few mild cases of locked-jaw, in which scarcely any means of relief have been employed, except turning the horse into the cold air. Indeed such cases so frequently terminate fatally, that the owners of horses thus diseased

generally leave them to their fate. In the slight cases above alluded to, considerable rigidity existed in the muscles, the act of swallowing was slightly obstructed, but not prevented, and the jaws were only partially drawn together. On these occasions the complaint could seldom be traced to any particular source."

The foregoing remarks are here given for the sake of shewing the opinions of others upon this terrible disease; but little faith is to be placed in any of the plans recommended, because the author of the present work has witnessed their failure in numerous instances in the course of his practice.

Opium has generally been considered as the only medicine capable of giving relief, and it is very probable that, if given at an early period of the disease, it might have the desired effect. But the disease is seldom discovered until the rigidity of the muscles has taken place in a very considerable degree, and the possibility of giving any thing by the throat is totally lost. When, however, it is practicable to give medicine internally, it is very probable that either the powder of white hellebore, or the digitalis or fox-glove, might be equally if not more efficacious than opium. They are both very powerful narcotics, and the digitalis has the faculty of producing the prostration of strength in a very remarkable degree. The dose should be large, as it is fruitless to trifle with a disease, the continuance of which we know must inevitably end in the death of the animal.

The dose, therefore, of either should be at least half an ounce, and to be repeated as occasion might require. It might, in cases where it is impracticable to introduce it into the stomach, be thrown up in a clyster of warm gruel, and one or two rowels might be cut in any convenient part of the body, and the same quantity of the powder may be introduced into the rowel.

ON THE DISEASES OF THE LUNGS.

Under this head may be comprised coughs, pleurisy, or inflammation of the lungs, and asthma, or broken wind. There are but few horses that escape coughs at some time of the year. This certainly arises from the irregular treatment to which they are subjected in their domesticated state, for they are rendered more tender and susceptible of cold by warm cloathing and the unnatural heat of the stable than they would be in a state of nature.

But previously to entering on the diseases of the lungs, it will be necessary to give an anatomical and physiological description of those viscera. The body of the horse is divided into two cavities, the one anterior, the other posterior. The anterior one is called the chest, and contains the heart and lungs; the posterior one contains the stomach, the liver, the spleen, the kidnies, the bladder, and the intestines. The division between these two cavities is effected by a

strong muscular curtain called the diaphragm, and which is comparatively stronger and more muscular in the horse, and is situated more obliquely than in the human being, by which means the stomach lies below it, although the body is in an horizontal position. This oblique position of the diaphragm renders the resistance of the stomach and intestines less powerful than if it were placed in a more perpendicular direction. The lungs are divided into two masses, or lobes, but connected at one end by the termination of the trachea or windpipe. This pipe is composed of circular rings of cartilage, or gristle, which surround it for about two-thirds of its circumference, the back part being plain, smooth, and even, that it may not incommode the œsophagus, or gullet, which passes down immediately behind it, and on which it lies. At its entrance into the chest, it is divided into two principal branches, called its bronchia, and is afterwards subdivided into innumerable other branches, the extremities of which compose an infinite number of small-cells, or air-bladders, which, with the ramification of the veins, arteries, nerves, and lymphatics, make up the whole mass, or substance of the lungs. These cells, or vesicles, are always filled with air, and distended in inspiration, or the act of drawing in air, and empty, or collapsed, in expiration, and receive from the blood-vessels a quantity of lymph, or perspirable matter, which not only keeps the lungs from drying, but makes a large and necessary discharge from the blood. The lungs may justly be considered as the most important organ of the body, as without the free use of them no animal can exist.

There is some difference, however, in the action of breathing between the horse and other quadrupeds, and also the human being; which is, that he breathes entirely through his nose and not through his mouth, and the cause of this peculiarity arises from the following circumstance:—The posterior part of the mouth, or throat, of the horse is so constructed as almost entirely to prevent the return of air through its cavity, or, in other words, precludes expiration.

Thus, although he can receive air through his mouth, he returns it only through his nose, and on this account he always shews great uneasiness when he is held by the nostrils, as, under those circumstances, he naturally dreads suffocation. At the posterior end of the roof of the mouth a membrane descends, the extreme edge of which lies on the surface of the tongue. This membrane is called *Velum palati*, and one of its uses is to prevent the food and water from returning through the nose in their passage to the stomach. This membrane, in the human being, terminates in a descending point, called the uvula, but in the horse it preserves one regular form, on which account the animal has no uvula, the whole of the *Velum palati* reaching down to the root of the tongue and resting upon it. Immediately behind the *Velum palati* there is a gristly substance of a triangular shape, having its base attached to the root of the tongue in the horse, this substance is called the epiglottis. Its office is to cover the orifice of the trachea, or windpipe, in the action of swallowing. It is always raised by its own elasticity, and never covers the trachea, or windpipe, except at the moment when it is pressed down by the food passing over it into the œsophagus, or gullet.

When it is elevated it turns back with its upper surface immediately against and behind the *Velum palati,* with which it enters into close contact in such a manner that it forms a valve, preventing the return of air, or any substance through the mouth. For it may always be perceived that the horse, even during the most violent exertions, or even at the termination of a severe race, never opens his mouth for the purpose of breathing, but performs it solely through his nose, on which account his nostrils are more capacious and flexible than in any other quadruped. But all the ruminating class, or animals that chew the cud, breathe through the mouth when hard pressed for breath, as may be seen by their opening their mouths and panting with their tongues. The nostril of the horse differs from those of other quadrupeds by being divided by a septum, on one side of which is a channel through which the air passes and repasses to and from the lungs, and on the other side is a cavity which extends upwards about four or five inches, but terminates in a *cul de sac.*

It is not easy to account for this peculiar formation of the nostril in the horse, though there is no doubt it was designed for some useful purpose in the animal economy.

When the horse draws in air, this part becomes inflated, and gives that bold animated expression so perceptible in a fine well-formed head of a blood-horse.

In other respects there is but little difference between the organs of respiration in the horse and those of the man, except that the diaphragm is much more muscular and situated more obliquely, by which construction the stomach lies under it and occasions much less resistance to the action of the diaphragm than would have been the case under a different formation

The capacity of the chest is never stationary. It is alternately expanded and contracted in unison with the action of drawing in air or expelling it.

The expansion of the chest is performed by the action of the intercostal muscles which separate the ribs wider from each other, whilst at the same time the diaphragm straitens and forces back the stomach and intestines. The action of breathing being performed in this way, it is easy to imagine how it must be impeded by the saddle being girthed too tight, or too far towards the flank, and this obstruction is occasioned not only whilst the anima is saddled, but also whilst he is in the stable, in consequence of the surcingle being generally girthed tight to prevent it from slipping into the flank.

When this is the case, respiration is performed chiefly by the diaphragm, as the ribs cannot expand to their proper extent in consequence of the confinement which they experience. Hence it frequently happens that a young horse, when girthed too tight, will not move forward when required, or else by a sudden expansion of the ribs, accompanied by a violent plunge, he breaks them short asunder and gets rids both of the saddle and his rider at the same moment. But old horses have the cunning to hold their breath so as to swell out the chest whilst they are being girthed, by which trick the girths become slack when the chest returns to its natural dimensions.

The particular use of respiration is to extract a certain part from the atmospheric air, which in the language of chemistry is called oxygen, and without which no animal can

live. This oxygen is combined with the blood by some process not thoroughly understood, but it is certain that the whole of the blood contained in the body and extremities circulates through the lungs in a given period, and by taking up the oxygen becomes fit for the purposes of supplying every part with its vivifying principle. During this process, however, the blood parts with a considerable portion of its watery principle, which is carried off by the air which returns from the lungs, and which when it alights on any substance colder than itself is converted into steam or water, as is apparent on the walls of the stable in winter, which are generally wet from this cause.

It is also perceptible in a cold morning, when it may be seen issuing from the nostrils in the form of smoke, but it is never visible on a hot dry day.

The chest, in all quadrupeds endowed with great speed, is comparatively large in proportion to their general bulk. This is a very necessary ordination to enable them to go upon wind, because, as a certain quantity of oxygen must be presented to the blood in a given time, and as the circulation is much increased during any violent and rapid motion, a larger mass of lungs become necessary, for the purpose of transmitting the blood according to its increased velocity.

Under all these circumstances it is not very surprising that these organs are so susceptible of disease, when it is considered how much they are exposed to injury from ill-treatment of every description.

The principal and, indeed, the primary symptom of disease in the lungs, is inflammation in a greater or less degree. The exciting cause is immaterial, as the consequences are dependant wholly on the degree or the duration of the inflammatory attack Thus when the attack is extremely violent, if relief is not speedily obtained, a mortification will take place in a few hours, and this is by no means extraordinary when the great vascularity of the lungs is taken into consideration. But even if the animal escapes this unfortunate termination of the disease, it generally lays the foundation for a permanent cough, or broken-wind.

This may be brought on by an effusion of water in the chest, or by lymph being thrown out into the air cells of the lungs, or by the destruction of some part of the lungs in consequence of the inflammation.

In any of these cases the animal will breathe with more or less difficulty, and consequently will become much reduced in his value and utility.

On examining broken-winded horses after death, the most usual appearance of the lungs is an universal thickening of their substance, by which means much of their elasticity is lost, and their weight specifically increased, whilst, at the same time, their capacity for receiving air is diminished.

During life, the lungs entirely fill the cavity of the chest, so as to leave no space between their outward surface and the inward surface of the ribs; thus they expand and contract, following up by their own elasticity the action of the ribs and diaphragm. Hence it is probable that adhesions of the lungs to the ribs are not so injurious to respiration as might be imagined. If the chest is punctured in the dead subject, the external air rushes in and the lungs collapse, but if the lungs do not collapse it shews that the horse was broken-winded,

and that they have lost their elasticity. This state of the lungs sufficiently accounts for the difficulty of breathing, for as their property of dilatation is destroyed, the ribs cannot expand without forming a vacuum in the chest, which the pressure of the external air prevents, and which may be readily perceived in the case of broken-wind, for then the intercostal muscles are so strongly retracted as to form a deep furrow between every rib, as well as a depression in the flanks. If there is water in the chest, the horse never lies down, as the pressure which would take place in that situation would cause suffocation immediately.

Broken-wind has been ascribed by some veterinary writers to a rupture of the air-cells of the lungs. When this is the case, (they observe) the lungs never completely empty themselves in expiration, and hence a less quantity of air circulates through them in a given time.

It is true, that on dissection, cases have occurred where the membraneous lining of the cells has been separated from the substance of the lungs, and air has been found between, occasioning the same appearance as emphysema, or the air which forms between the skin and the flesh in a particular state of wounds, or when mortification has taken place. But whatever may be the cause of the disease, it is a pretty certain fact that hitherto it has been found to be incurable. The difficulty of breathing experienced by broken-winded horses is, however, not always the same, as it varies much in consequence of the season of the year, or of the mode in which the allowance of their food and water is regulated.

Indeed there are periods when it is difficult for a stranger to discover that a horse is broken-winded, especially after two or three hours exercise, when the stomach and intestines have emptied themselves of their contents, and the vessels have been unloaded by a copious perspiration from the skin. At this period no greater motion is perceived in the flanks of a horse that is broken-winded than of one that is sound, nor is the respiration more difficult when the animal is put into action. But if the stomach be again suddenly filled with water, the difficulty of breathing instantly returns, and the horse becomes incapable of any active exertion, without the danger of being suffocated and dropping down lifeless. It is a matter of some conjecture whether this is produced merely by the sudden and mechanical effect of distending the stomach, and thereby increasing its resistance to the action of the diaphragm, or by the action of cold on the nerves of the stomach, occasioned by the sudden admission of a large quantity of cold water.

It is probable, that it may be occasioned in some degree by both. It is, however, from observing this extraordinary effect, that persons who have the care of broken-winded horses always keep them very short of water, and, indeed, would, if it were possible, deprive them of it altogether.

The disease of broken-wind seldom comes on suddenly, but is generally preceded by habitual coughs and colds, and these causes are considerably aggravated by over-feeding and want of sufficient exercise. In regard to coughs there is this perceptible difference between those which are recent and inflammatory, and those which are chronic or of long standing. In the first there is generally

some discharge from the lungs, but in the latter there is seldom any discharge whatever.

As the horse does not expectorate through the mouth, the mucus is coughed up into the nose, from whence it is afterwards discharged by the action of sneezing. But in the old or dry cough, as there is no mucus coughed up, so the horse does not sneeze after coughing, and much reliance is placed on this circumstance by dealers in forming their opinion as to the state of a horse's lungs.

It is, therefore, their custom to pinch the upper part of the trachea, or windpipe, to force the horse to cough, so as to enable them to ascertain whether he is sound in his wind, and although this is by no means an infallible criterion, still there is a very manifest difference between the cough of a sound horse and one that is broken-winded, inasmuch as the first is clear, full, and sonorous, whilst the latter is short, and generally attended with a wheezing noise, and mostly accompanied by a discharge of wind from the fundament, in consequence of the sudden contraction of the abdominal muscles in the effort to expel air from the lungs. Many curious tricks are said to be practised by the lower class of horse-dealers, such as giving the animal a large quantity of oil, and sometimes a quantity of leaden shot, both equally ridiculous and unavailing; but the most absurd practice of all is the custom of making an artificial and additional opening to the anus, with a view of more easily letting out the wind with which horses in this state are particularly troubled. This flatulency or collection of air in the intestines has no connection whatever with the cavity of the chest, and the only inconvenience which it occasions arises from its distending the belly, and consequently impeding in some degree the action of the lungs. It is produced entirely from that indigestion which always accompanies more or less a diseased state of the lungs; for as a free and perfect respiration is essential to the general health and vigour of animal bodies, so the want of it must naturally impair the action of the stomach and produce the inconvenience above-mentioned.

There is, however, a great difference in the powers of respiration, even in a healthy state, amongst different horses, and this is one of the principal features that constitutes the distinction between a blood-horse and one of a common breed. The reader may easily ascertain this fact by examining a set of horses in a mail coach when just arrived at the end of a stage, when it will almost invariably be found (provided they are all equally sound in their lungs) that the best bred horse will blow the least. Sportsmen are in general pretty well acquainted with the superiority of the blood-horse in regard to wind, for there is no test more severe or more unerring than that to which a hunter is exposed.

But the principal trial of wind is at the first burst, when the fox goes away gallantly, and when the hounds, being fresh, pursue him at the top of their speed. If this lasts for ten minutes without a check and over a deep country, it will often happen that the speediest horse does not always take the lead, but is sometimes forced to yield it to one that is better winded though less speedy.

The breathing also is much interrupted by every leap which is taken over fences and

other obstacles; because at the moment when the horse collects all his strength to make his spring, the whole of the muscles of the abdomen are in a violent state of contraction, so as to stop the action of the ribs altogether, and the animal is obliged in consequence to hold his breath until he alights again upon the ground. The lungs are then obliged to act with redoubled quickness to make up for the time which has been lost during the temporary suspension of breathing; because, as the circulation of the blood is still going on, it must be supplied by increased efforts with that quantity of oxygen which is necessary to give it its vital principle.

Trainers of race-horses and sportsmen entertain an opinion that a horse, to be in thorough condition, should not sweat when undergoing a severe gallop. But this is a very erroneous opinion, and totally in opposition to the laws of nature, as appears from the following data. The heat of all animal bodies cannot exceed a certain degree without occasioning death. This heat is increased by exercise; but when it reaches the utmost limits above-mentioned, nature has the faculty of restraining its farther increase by a very simple process, and this process is perspiration. Thus when the blood-vessels of the skin have thrown out such a portion of the watery part of the blood as to moisten the surface of the body, evaporation begins to take place, and the air of the atmosphere absorbs the superfluous heat, and the animal is relieved. Hence it is that during a burst in a fox-chace, a horse's breathing is always considerably relieved as soon as he begins to sweat

ROARING.

This is an imperfection which naturally comes under the title of diseased respiration. It consists of a peculiar noise which takes place in the breathing of some horses during quick motion. Many speculative opinions have been held in regard to the origin of this disease; some ascribing it to the lungs, and others to an obstruction in the upper end of the trachea, or windpipe, occasioned by coagulable lymph having been thrown out during inflammation, and forming a thickening of the surface. At all events, no horse that is affected with this infirmity can be considered sound. Dealers attempt to discover the disease by striking the horse under the belly with a whip and turning him round suddenly at the same time. If the horse grunts during this process, it is generally considered a proof that he is a roarer. This grunting is occasioned by the sudden contraction of the muscles of the abdomen forcing out the breath from the lungs through the windpipe with greater rapidity, in consequence of the sensation of the whip, and also from the bending of the ribs in the action of turning round in a small compass.

The disease sometimes begins by a whistling noise, but when it reaches a more confirmed state the breathing becomes so deep and loud as to be heard at a considerable distance. It is possible that the orifice of the windpipe may be sometimes injured by being pinched, to discover, by the manner of coughing, whether or not a horse is sound in his wind.

Confirmed roaring, however, should be distinguished from that temporary noise

which is made in breathing when the animal is affected with a cold or with the strangles.

CRIB-BITING.

So called from the habit which some horses acquire of biting their manger, accompanied with a convulsive motion of the windpipe.

During this action, it is supposed that the horse sucks air into the stomach, but it is difficult to conceive how this can be the fact, because the air being perfectly elastic is always propelled to that part where it meets with least resistance. Now, as the horse's mouth remains open during this apparent action of sucking in air, it must follow, that when the fauces contract in the act of swallowing, the air must be forced back again out of the mouth, and not into the œsophagus, which is always close and collapsed except when food or water are passing through it. Neither air nor any fluid can be sucked into the mouth without room being made for its reception by the lungs drawing in the air already contained in the mouth. In this case, therefore, whatever air might be drawn into the mouth by this action of sucking, or crib-biting, must necessarily pass into the lungs which act like a pair of bellows, drawing in air the moment they are expanded.

It is certain, however, that crib-biters generally have their intestines much distended by wind; but this may arise, as in the case of broken-wind, from imperfect digestion; for during the crib-biting a great deal of saliva escapes from the mouth, and the stomach is consequently robbed of a great portion of a fluid which is a considerable agent in the digestive process. The disease perhaps is nothing more than a spasmodic affection of the muscles of the larynx excited by some sympathy with the muscles of the jaws. It is, however, incurable, and may very properly be said to render a horse unsound. Grooms have a custom of buckling a strap round the upper part of the necks of horses that are crib-biters, with a view to prevent the movement of the windpipe.

Broken-winded horses, and those which are in any degree affected in their lungs, have in general a greater thirst for water than others; and, from a prevailing idea that water is injurious to them, many persons would, if it were possible, deprive them of it altogether. But this is in some degree a very mistaken notion, and it is probable that the circumstance of keeping a horse too short of water may sometimes be the means of bringing on the disease they are so anxious to prevent. The imperfect digestion of horses that are thick-winded produces fermentation, and an unnatural heat in the stomach, and on this account horses of that description are more eager for water, and that in proportion to the privation they experience. Independently of this circumstance it should also be considered, that the food which the horse takes in the stable is quite destitute of moisture, and very different from that which he would find in a state of nature, consequently he requires more fluid for the purposes of digestion.

It should also be born in mind, that the harder a horse works, the more he will perspire, and this increased consumption of the perspirable fluid of the body, requires a larger supply of water to repair it. It certainly would be injudicious to suffer the animal to drink a great quantity immediately before he commences his labour. He should, therefore, have a small quantity at once, and more

frequently, in which case he would be inclined to drink less than when he has been kept, as is the common custom, for several hours without it. Having thus endeavoured to describe the various diseases of the lungs, it will be necessary to enter on the proper mode of treatment.

INFLAMMATION OF THE LUNGS

Is undoubtedly the primary cause of most of the diseases of that organ. It is generally produced by cold applied to the skin, or by being exposed to a current of air in a state of perspiration, a certain degree of inflammation may also be brought on by too long or too violent exertion. Be the cause what it may, it is generally very rapid in its effects, for the lungs are more vascular than any other part, and being confined within a circumscribed case, they have no space for that swelling which always accompanies inflammation. Hence the swelling takes place internally until the air-cells are nearly obliterated, and this is probably one of the causes of the difficulty of breathing which always attends this disease. It is generally preceded by a shivering, the animal appearing dull and drooping his head. The ears and legs are extremely cold, and the latter are remarkably fine, and free from swelling. As the disease advances the breathing becomes more difficult, as may be perceived by the short and quick motion of the flanks. The mouth also feels hot, the animal attempts to cough, but is prevented by the soreness of the lungs. He refuses all food whatsoever, and seldom or never lies down. In this state if he is not speedily relieved the inflammation goes on so quickly as to produce mortification in a few hours, or else to occasion an abscess which, although not so rapid in its effects, is equally fatal.

On the first attack of inflammation in the lungs, at least four quarts of blood should be taken at once, and even six if the horse be very fleshy, and the difficulty of breathing should require it. A glyster should then be given, composed of thin gruel, in which about four ounces of Epsom salts have been dissolved, and this may be repeated every third hour until the bowels are moderately open. It is customary with some veterinary practitioners to give purges in this disease, but as no other drug except aloes will have any certain effect, it is very doubtful whether the action of the aloes on the stomach and intestines does not do harm, by keeping too great a quantity of blood about the centre of the body, and preventing it from being determined to the skin and the extremities, and thereby unloading the lungs.

After the horse has been bled, and has had the glyster administered, the following ball may be given.

R—Emetic Tartar . . 1 drachm.
Assafœtida . . . . 1 drachm.
Liquorice powder sufficient to make the ball of a proper size.
The whole to be made up with syrup.

This ball may be repeated in twelve hours. In about an hour after, a small quantity of bran-mash may be given, and some water to drink, with the chill taken off.

The horse should be warmly cloathed if the weather is cold, but there should be a free circulation of air in the stable. Attention should be paid to the surcingle, by which the body cloaths are kept on, in order that it may not be girthed too tight, a circumstance

which must be very injurious to the animal in case of any soreness in the chest, as well as detrimental to his breathing in consequence of its confining the action of the ribs.

The modern treatment of inflammation of the lungs, at the Veterinary College, as well as that adopted by some practitioners, is to expose the horse to cold in a loose box with all the apertures left open, and this too without any regard to the season of the year. The author of the present treatise having never mustered resolution sufficient to act upon such a bold system of practice, of course cannot speak to its effects in any case immediately under his own care, but he has certainly witnessed its failure in several cases in his own neighbourhood; and has also heard of similar instances of want of success in other quarters.

The old practice of smothering the animal with cloaths, and excluding air as much as possible from the stable, must, on a moment's reflection, be not only absurd but highly injurious; but the impropriety of one extreme is no justification for running into another that is directly opposite, and at least it appears very paradoxical, that a disease which is produced by cold should have the continuance of cold adopted for its cure. It will perhaps be urged in reply to this remark, that the body, during the state of fever, is labouring under a preternatural degree of heat, and that the application of cold must be beneficial in reducing it to its healthy standard. This may be very just in regard to fever alone, and the practice has undoubtedly been adopted in human medicine with great success, but in inflammation of the lungs the case is very different; for as the disease arises from suppressed perspiration, owing to the rigidity and preternatural contraction of the vessels of the skin, the blood is prevented from diffusing itself in so great a proportion on the surface of the body, and the heart and lungs are in consequence overloaded, and thrown into increased action in an attempt to relieve themselves. In this state it must be obvious that the first process towards a cure should be to produce such a relaxation in the vessels of the skin as to restore the natural perspiration, and prepare them for the reception of that blood which has been impeded in its circulation; and the usual course to effect this object is, by administering such medicines internally as are known to be diaphoretic, and to assist their action by warm cloathing and a temperate atmosphere. Hence it is not easy to conceive how such a salutary process can take place when the animal is exposed to extreme cold, the natural consequence of which must be an increased contraction of the skin, as well as the keeping up that extreme fineness in the legs which always attends the worst period of this disease.

It has been before observed, that copious bleeding is necessary on the first attack; and it very frequently happens, that bleeding alone is sufficient to remove the disease in a few hours, and this clearly takes place by unloading the blood vessels, and thereby relieving the heart and lungs. But when the disease has existed a considerable length of time without bleeding having been had recourse to, it happens (if the danger of mortification has been escaped) that nature attempts to relieve herself by an increased secretion of mucus from the lungs, and by

discharging it from the nose. When this process has begun, and is not attended by any excess of fever, bleeding is improper, and such means only are necessary as will tend to keep up the discharge; for if that be suddenly stopped, a fresh inflammation takes place, and which mostly proves fatal. During the discharge from the nose, the legs generally swell, as well as that part of the body which lies under the chest.

This arises from the weakness which follows the first inflammatory attack, and is considerably increased from the animal's aversion to lying down in consequence of being unable to bear any pressure on the chest. In this state it requires great attention on the part of the veterinary surgeon to regulate the degree of action in the system, so as to bring on such an absorption as shall prevent a dropsy in the chest, without stimulating the heart to such an extent as to produce a recurrence of fever. The best mode therefore is, to give nourishing food, such as malt mashes, or carrots, or scalded oats mixed with brown sugar, and the following medicine, which will act as a diuretic:

R—Assafœtida . . .	2 drachms.
Liquorice powder .	half-an-ounce.
Venice turpentine .	half-an-ounce.

The whole to be made into one ball, and more liquorice powder may be added if necessary to make it of a proper consistence.

This ball may be repeated in twenty-four hours after the first has been given. The horse should be thoroughly cleaned and dressed, and his nostrils spunged out several times during the day with warm water. The rack and the manger should also be frequently cleansed from the discharge which falls from the nose, and which becomes very offensive to the animal, after it has remained any length of time on those places.

The legs should be well rubbed, and afterwards wrapped round with hay-bands, with a view to promote warmth in them

On the first attack of inflammation on the lungs, if the symptoms are very violent, a large blister may be rubbed on each side of the chest, or a rowel introduced in the breast; and in order to increase its action, the skin should be separated only just sufficient to admit the rowel, by which means the degree of inflammation will be much increased, and its effect more speedy; but if the surrounding parts swell to an inordinate size, the rowel must be taken out, and some tow dipped in digestive ointment may be introduced in its stead. The blister may be composed of cantharides and sweet-oil. As the horse gains strength, he may be walked out for a few minutes in the day, and his exercise may be gradually increased: but great care should be taken not to fatigue him, nor to suffer him to stand still when exposed to the cold air. If the bowels are not sufficiently open, clysters may be given, composed of four ounces of Epsom salts dissolved in two or three quarts of warm water; and if the season of the year admits of it, some grass or green vetches may be cut and given to the horse in small quantities at a time.

PLEURISY.

Is an inflammatory affection of the pleura, or membrane which lines the chest, and its symptoms vary so little from general inflammation on the lungs that the difference is

scarcely perceptible. In this disease the horse shews great restlessness and uneasiness, and shifts about from place to place. The fever which is at first moderate, rises suddenly to a very high degree. In the begiming he often strives to lie down, but starts up again immediately, and frequently turns his head to the affected side. On this account an inflammation on the pleura has sometimes been mistaken for the gripes, but there is this difference that, in the latter, the horse frequently lies down and rolls. When the gripes are violent he will also have convulsive twitches, his eyes will be turned up and his limbs stretched out as if he was dying, his ears and feet being sometimes excessively hot, and sometimes extremely cold. He falls into profuse sweats, strives often to stale and dung, but with great pain and difficulty, which symptoms generally continue until he is relieved. But in a pleurisy, the animal's ears and feet are uniformly and excessively hot, and his mouth parched and dry, and even sometimes when he is near dissolution, his fever is continued and increasing, and though in the beginning he makes many motions to lie down, yet afterwards, he stands back as far as his collar will permit, and makes not the least offer to change his posture, but stands panting with short stops, and a disposition to cough until he is relieved, or else drops down and expires.

In inflammation of the lungs there exist several of the same symptoms, except that in the beginning he is more tranquil, and never offers to lie down, even during the whole time of his complaint. His fever is at the same time considerable. In a pleurisy a horse's mouth is generally parched and dry, but in peripneumony, or inflamed lungs, when opened, a roapy slime generally runs out in great abundance, besides a discharge from the nose much in the same way as in a malignant fever, and a red or yellow serum, or coagulable lymph will adhere to the inside of the nostrils. In a pleurisy a horse works violently at the flanks, is very restless, and his belly generally appears tucked up, but in a peripneumony he always shews fulness, and the working of his flanks is regular, except after drinking, or when he is agitated by being disturbed by giving him medicine, in which case the heaving becomes stronger and more vehement than at other times; his ears and feet are for the most part always cold, and he often falls into damp sweats, with other symptoms common to malignant diseases, except that they come on more suddenly and with greater violence.

The cure of a pleurisy and of an inflammation on the lungs are the same, except where accidental symptoms require some variation, for in fact it sometimes happens that both are combined, and in that case it is hardly possible to make any distinction. Copious bleeding, and most other evacuations, are absolutely necessary in all such cases

Treating on these diseases, Gibson makes the following judicious observations. He says, " as pleuretic disorders are more apt to leave some taint on the lungs than common colds or other inflammatory disorders, a great deal of care must be taken upon his recovery that his feeding be proper and in right quantity, and his exercise well-timed. A horse should be kept to a light open diet for a fortnight or three weeks, viz. a quartern of bran scalded every day, and besides that two or three small feeds of the cleanest and sweetest oats

sprinkled with water. Instead of the scalded bran it will be well to give him sometimes for a change, about a quart of barley scalded in a double infusion of hot water, that it may be softened, and the water may be given him to drink. His exercise should be gradual, and increased as he gathers strength, and always in an open free air when the weather is favorable. If there be any remains of a cough, the air, with moderate exercise, will tend greatly to remove it, and the remedies usually given in chronic affections of the chest should be resorted to. Purging is also proper after pleuritic diseases, but the purges should be very gentle. The following proportion will generally suffice.

Barbadoes aloes . . .	six drachms.
Castile soap	half-an-ounce.
Ginger	half-a-drachm.

In a ball with syrup of buckthorn.

This may be given with the usual preparations necessary in purging, and it will operate well without occasioning either sickness or griping.

This ball may be repeated at the intervals of a week, provided the horse does not appear weak after the first dose.

There is sometimes an external affection of the muscles of the chest which is generally called chest-founded. It is known by a stiffness of the body, of the fore-legs and shoulders, and is sometimes attended with a short dry cough, and a great soreness when any of those parts are handled. Whilst the chest-founder is recent, it is to be treated as pleurisy, and may be carried off by bleeding, antimonials, and bran-mashes, or other cooling diet. Purges also will be useful.

THE DISTEMPER.

There is a kind of cold, or catarrh, with which horses are frequently affected at the spring of the year, and which is generally known by the name of the distemper. It is produced by the cold easterly winds which usually prevail at that season, and which are more injurious in their effects on account of the animal undergoing the progress of shedding his winter coat, and consequently being less provided against their baneful influence.

It principally attacks horses that are kept in hot stables, the artificial heat of which has brought on the shedding of the coat prematurely, and indeed it is wonderful that any coach-horse in London ever escapes this disease when it is considered that he is obliged to stand for several hours, in the street uncloathed and exposed to all the severity of the weather, and this too after having been heated by drawing the carriage through half the streets of the metropolis, at the present fashionable rate of ten or twelve miles an hour.

As the first attack of the disease is generally attended with a greater or less degree of fever, it will be proper to bleed, according to the violence of the symptoms. It is also frequently accompanied with an inflammation or soreness of the throat, occasioning a difficulty in swallowing. In this case a blister may be applied to the throat, and if the glands under the ears are swelled, let some discutient application be used, but if they are inflamed to a great degree, a bran poultice may be applied with advantage. The bowels should be kept open by clysters, and if the animal continues to be very costive, a mild purge may be given, viz.

Aloes Barbadoes . .	seven drachms
Castile soap	one ounce.
Ginger	half-a-drachm.

To be made into a ball with syrup of buckthorn.

If there is much difficulty in breathing, it indicates a considerable degree of inflammation in the lungs, in which case a blister may be applied to the sides of the chest, or a rowel introduced in the front part of the breast. It is a very common, but a very injurious, practice to give cordials in this disease. These only serve to increase the inflammatory symptoms, and very often destroy the patient. Diaphoretics, or such medicines as increase the perspiration, are most beneficial, and one of the following balls may be given every twenty-four hours for three days successively.

Emetic tartar . . .	one drachm.
Assafœtida	two drachms.
Liquorice powder . .	half-an-ounce.

To be made into a ball with syrup.

The diet should be bran-mashes or green food, if it can be procured, and the water should be given with the chill taken off. The horse should be kept rather warmly clothed, and not fatigued by any violent exercise. The distemper, as it is called, has generally been supposed to be infectious, as it very frequently runs through a stable. But it is most probable that the disease arises from some peculiar state of the atmosphere, and which of course may affect one horse as well as another, without any infection or contagion.

Gibson gives a very circumstantial and copious detail of a distemper or influenza which prevailed in the year 1732. He says, "they were seized suddenly with a dry sounding cough, which shook them so violently that they appeared ready to drop with hard straining and want of breath. Their throats were sore, and the glands were much swelled and inflamed, and painful to the touch. For the first two days most of them refused all manner of food as well as water, and had so many other bad symptoms that when this distemper first broke out, it seemed to threaten a great mortality among them. Indeed, the only good sign they had was a running at the nose, which generally began on the third day, and continued in a very profuse degree for five or six days. While this secretion continued they could not feed much, though their appetites were not deficient. Hence they lost their flesh exceedingly, whilst the violence of the complaint lasted, but as soon as the discharge abated, they began to eat voraciously and soon recovered. This distemper, though seldom fatal, yet was so very catching, that when any horse was seized with it, those horses that stood on each side of him were generally infected as soon as he began to run at the nose. While this sickness lasted, (says Gibson,) above one hundred troop-horses under my care were seized with it. I always caused the sick horses to be separated from those in health, and in one troop of horse-grenadiers we filled a stable of thirty-six stalls in three days, and another of eighteen in three or four days more; nevertheless, all of them recovered in a short time. And many other horses, belonging to private gentlemen, that were placed under my care did well, without any remaining injury from the distemper; and it was remarkable that some which had been subject to a dry cough before this sickness continued were free from it for some time afterwards, though I

do not remember that any of them were absolutely cured of it.

"The horses that chiefly escaped the distemper were those that had been kept in constant strong exercise, or full aged horses, many of which remained uninfected though very much exposed to it. The method of treating the malady, as may be supposed, was simple and easy. As soon as the horses were attacked they were bled plentifully, which evidently gave them relief, many of them being feverish and very shortbreathed.

"Afterwards mucilaginous drinks, in which linseed, liquorice, and garlic, were the predominant materials, were exhibited, and with these were given balls made of the aromatic powders mixed with honey, balsam of sulphur, and the oil of aniseseed. In some cases it was thought necessary to give about half-a-pint of white wine with a few ounces of oxymel and squills. After they began to run at the nose, the complaint began to abate, and as soon as the horse looked somewhat lively, and began to eat, the use of medicines was suspended, and he was allowed plenty of water with free air and exercise. This disease it seems began near London, about the middle of September. It became general in about six weeks or two months, and made so swift a progress, that in the space of one week there was scarcely a stable without the infection. The time of its continuance in each individual was but short. Some horses were perfectly recovered in a week or ten days, some in a fortnight, and few continued under it longer than three weeks or a month before they recovered their flesh and their usual strength and vigour. Scarcely any indeed did amiss, except such as had been unskilfully treated, by syringing their noses with sharp stimulating liquids, which, by irritating the membranes, already too much inflamed, brought on ulceration, and a continued discharge of purulent matter that could not be stopped, with swellings of the glands, which ended in caries of the bones.

"About two years afterwards, in 1734 another epidemical disease happened. This proved more fatal than the former, though from its short continuance it was much less noticed, for many horses recovered so far as to be out of danger in two or three days. In this the horses coughed violently, and many of the hackney-coach-horses and cart-horses that were obliged to work were observed to run greatly at the nose.

"Some were seized suddenly with a high degree of fever, and their flesh apparently seemed so sore and tender, that they could scarcely bear to be touched. They were generally costive, staled but little, and that with pain and straining, and the urine was of a very high colour. They refused all manner of sustenance, and were so extremely sick that they could not drink, neither would many of them lie down till the disease came to a crisis; yet upon treating them with cooling and opening medicines, and with plentiful bleeding, they generally recovered. Some of the horses affected with it had very hot and inflamed eruptions, which broke out in several parts with blisters resembling erysipelas. Those that came to maturity appeared generally on the inside of the arm or fore legs, near the elbow, or towards the hock; and some of them had large bags of water collected on their sides or bellies, or towards their flanks near the inguinal glands, constituting what the farriers call the water-farcy. Some had been costive before they were

seized, for their dung was extremely hard and black. Under these circumstances, soft and oily clysters were injected to relax the bowels, and in some cases the bleeding was repeated; cooling infusions were given, with nitre, cream of tartar, &c. with a view to promote both dung and urine, and by that means to abate the febrile heat. This, in fact, not only took off the fever, but caused critical discharges from the boils, which at first had but a very indifferent aspect, to digest into good matter; so that none of the horses that were thus treated did amiss; and where some died in the hands of unskilful persons, it was generally owing to their giving them cordials before the fever abated, and their stomachs were in a condition to receive food."

This distemper, it appears, did not continue violently in London above three weeks or a month; and those that were seized about the latter part of that time, had it more favourably, and required little more than bleeding. Those horses that appeared surfeited were purged, and had antimonial powders given them, which generally perfected their cure; and some were sent to the salt marshes, or other spring grass, the sickness having happened just before the grass season.

Gibson also states, that he has known horses seized with the symptoms here described at other times, when the distemper was neither infectious nor epidemical, and these were always relieved with bleeding and other evacuations, especially with diuretics and diluents, such as water-gruel or bran-water. The strangles sometimes may be ranked amongst the epidemical diseases of horses. It seizes horses both young and old that have not had it before, and is clearly infectious. In this case there is usually a fever, with loss of appetite, and other symptoms of a malignant nature. In some seasons the spring colds among young horses are accompanied with an epidemical fever, especially about the time of shedding their teeth, and putting out their tusks; and without some care and diligence be used, these colds are apt to leave an habitual cough, with an enlargement of the maxillary glands, and a discharge from the nose, which sometimes ends in the glanders. He asserts also, that the symptoms of farcy often appear during the prevalence of epidemic fevers; in fact, that it becomes infectious, and makes a quick progress on every horse that is seized with it, spreading universally over the whole body, forming deep abscesses amongst the interstices of the muscles, discharging great quantities of fetid matter, like the grounds of beer.

Nor is it impossible that the disease called staggers may arise from contagion, if not in an original affection, at least as a collateral symptom.

About eight years ago, says Gibson, several young horses were seized with the staggers, attended with such uncommon symptoms as put the ordinary practitioners quite to a stand. It was sufficiently visible that the disorder lay principally in their heads, by which most of them, more or less, lost the use of their limbs. Some were only cramped and convulsed in a moderate degree, and were soon relieved by bleeding and cephalic medicines, with proper embrocations; in others, this new distemper seemed to have a near affinity to a hemiplegia, or that sort of palsy which in men takes

away the use of one side, but not to such a degree as happens in the human body. He says, "I had a horse so bad, that when he came to be moved, he was held up on the side affected by several men, who were forced to support his whole weight. When he was let loose in the riding-house, he turned round like a person in a vertigo, and fell down suddenly; but this rotation did not proceed altogether from the causes which usually produce the vertigo in men; but from his wanting the use of his limbs on the off-side, which made him turn round to his near-side; the limbs of his near-side not being affected, but firm, which was the reason of this circular motion; for he could not get straight forwards for want of use in the other. Several horses were taken in the same manner, but in a less degree, and some were convulsed, and had their mouths sometimes pulled to one side, but were soon relieved; for those that were only convulsed in this manner, retained somewhat their appetite.

"Another remarkable case happened at this time of a horse that was so much convulsed that whenever he endeavoured to raise his head in the least degree, nothing could be seen of his eyes but the white part, which gave him a very extraordinary appearance. But as this horse also had a strong fever, and was affected on both sides alike, so he never lost the use of his limbs, but went staggering, and with a twitching motion, arising from convulsive cramps.

"This horse was recovered by bleeding and other plentiful evacuations, with the constant use of cephalics, which were given him in great plenty, especially castor, which had such an effect upon him that it kept him perspiring above three weeks without intermission, insomuch that all his cloaths, and the whole stable, were perfumed with it; and if these remedies were but one day omitted while the convulsions lasted, the horse always fell back, and was the worse for it; so that he must inevitably have died in the hands of any common practitioner, none of whom I ever knew treat convulsed horses after this manner.

"As to the horses that were affected on one side only, their lameness was more apparent; so that I caused them to be put into close stalls, and littered quite up to their bellies, and also had a good quantity of straw piled up against the wall or partition next the lame side, that they might rest upon it, and not be exposed to the danger of falling down. One gentleman, who had a very fine horse seized with this distemper, ordered the whole side of the stall to be lined with a triple bass matting, and his litter was spread all across the stable, pretty deep, from the end of the standing, which method was followed with most others that were under my care, and affected in the same manner, that they might not hurt themselves in case they should move backwards and fall down, but lie easy until they were helped up, for scarce any of them were able to rise of themselves. But most of these horses leaned their lame side altogether against the stall, without moving their posture, till they had pretty well recovered the use of their limbs, which generally happened in ten or twelve days; others that were less affected recovered much sooner so as to be able to stand without leaning.

"These had all of them fever when they were first seized, which is an usual attendant

on convulsive disorders, but after bleeding and other evacuations, their fevers abated and they began to feed on scalded bran, and pick a little hay by the hand. They were bled plentifully, and had clysters and lenitive purges. They were at the same time treated with cephalics and stimulating embrocations outwardly.

According to the same experienced writer, the jaundice, together with the staggers, are sometimes epidemical, there having been many young horses seized with this kind of malady. It is described to have occurred more remarkably in some seasons than in others, and generally about the end of the spring or the beginning of summer. It is no other than a bilious fever, and seems to have been mentioned by Soleysell in his chapter on the diseases of the head caused by choleric humours, which brought a great mortality among the horses in some parts of France and Germany in the year 1660, and afterwards in 1669 and 1670. This is seldom universal, or of long continuance in England, but when it does happen is generally fatal, probably for want of knowing the true origin from whence the disease arises.

COLIC, OR GRIPES.

This is a very common disease amongst horses, and, if not properly treated, sometimes terminates fatally. It most frequently arises from drinking cold water when the animal is heated by exercise, or it may arise from the abominable custom of riding horses in a sweat into a brook, or river. It may also occur from eating food that ferments in the stomach, such as green clover, vetches, &c. It should be distinguished from inflammation in the bowels, or in the kidnies, or in the bladder, especially as those heating remedies which are so generally used in this case, by all stable people, must tend to aggravate the disease to a great degree, if not to occasion the death of the animal.

It is always rendered more dangerous by that costive state of the intestines, which prevails in horses that are kept in the stable, and especially with those that are much nursed and accustomed to have the chill taken off the water before they drink it.

The habit too of being watered only twice daily, and, in consequence, drinking a great quantity at once, will sometimes produce complaints in the bowels. The symptoms are generally manifested by the horse appearing somewhat restless, and by whisking his tail; he also gathers up his hind-quarters under him, as if preparing to lie down, stamping alternately with his hind-feet, and sometimes striking his belly. As the disease increases, the horse lies down and rises again very frequently, and sometimes rolls about in the stall. His belly feels hard and appears distended with wind. The most absurd and preposterous remedies are often resorted to, such as giving the animal a quart of beef-

brine, chickens' guts, &c. Gin and pepper is also a very favourite recipe, and provided the disease is merely a flatulent colic, no mischief may ensue, but perhaps relief. But when it is accompanied by inflammation, it must be pretty obvious what must be the effect of brine, or pepper, acting on an inflamed or irritated surface.

During the attack the horse shews a desire to stale frequently, but without avail. This is but a consequence of the disease, and always goes off with the other symptoms. It may arise from hardened dung pressing on the neck of the bladder, or it may arise from sympathetic irritation in the peritoneal coat of the bladder. Whenever these symptoms of a difficulty in voiding the urine appear, diuretics are often administered very improperly, such as spirits of turpentine, &c.

On all occasions of this complaint, glysters should be given without delay, and if any hardened dung remains in the rectum, it should be brought away by the hand. The following ball may then be given, and repeated in two hours if the symptoms do not abate.

R—Assafœtida . . 1 drachm
Opium . . . half-a-drachm,
in one ball,

to be made a proper size by the addition of liquorice-powder and syrup.

The horse should then be well rubbed under the belly by a groom on each side of him, and he may be trotted for a few minutes. By these means the wind is sometimes expelled, and the disease subsides without any farther trouble. If, however, relief is not obtained in a few hours, the spasms increase, and inflammation comes on with all its dangerous effect. This is indicated in a pretty certain degree by the pulse, which is generally small and feeble. The horse also frequently lies on his back with his legs upwards for some minutes, and he does this probably to take off the weight of the intestines from the mesentery, which, in an inflamed state, becomes very sore and irritable. He frequently voids small portions of dung in the shape of gingerbread-nuts, and sometimes has a partial purging which stops suddenly. His ears and legs are generally cold, and he breaks out occasionally into cold sweats. He stands with his back-bone a little elevated, and has a small vibratory motion in his tail.

If the inflammation is not removed, or abated in twenty-four hours, mortification takes place. As soon as the mortification begins, the animal appears to be easier and more free from pain. It is, however, a deceitful calm, and is but the prelude to dissolution.

The first step to be taken in inflammation of the bowels is to bleed pretty copiously, to the amount of three or four quarts. This will be necessary to check the inflammation, be the original cause of it what it may.

Clysters composed of four ounces of Epsom salts, dissolved in thin gruel, may be administered every half-hour, and the following ball may be given and repeated in three or four hours if the symptoms do not abate, viz.

R—Assafœtida . . . 1 drachm
Aloes . . . 6 drachms
Opium . . . . 1 scruple
To be made into a ball.

The horse should have bran-mashes; and water with the chill taken off should be offered to him frequently, and he should be kept quiet and in an open box if possible, where he may extend his limbs at pleasure, and roll without being in danger of hurting himself.

When the cause of the inflammation is mechanical, such as an introsusception of the gut, or a twisting of them one across another, no relief can be obtained, as it is impossible to reach the seat of the disease by any manual operation. But whatever may be the cause of the disease, the frequent use of clysters is of the utmost importance, and in adverting to this circumstance it may not be irrelevant to the subject to offer some remarks on the proper mode of administering them, as well as on the form and dimensions of the instrument to be employed for that purpose.

Mr. Clark, of Edinburgh, makes the following judicious observations on these points. He says, "Clysters serve not only to evacuate the contents of the intestines, but also to convey very powerful medicines into the system, when perhaps it is not practicable to do it by the mouth, for although clysters are only conveyed into the larger intestines, and, perhaps, hardly penetrate into the smaller, still they are extremely useful, by fomenting as it were the latter, and at the same time by softening the hardened excrement that is accumulated in the former, and rendering it so soft as to be expelled out of the body, by which flatulencies, or other offending matters that may be pent up in them, are likewise expelled; besides, by their warmth and relaxing powers, they act as a fomentation to the bowels, and hence may be of considerable service in removing spasmodic constrictions in the bowels, carrying off flatulencies, and in preventing inflammation in the intestines; and, by conveying opiates to the parts affected, give speedy relief to colics," &c.

The use of emollient clysters in fevers is considerable; they act by revulsion, and relieve the head when much affected; besides, by throwing in a quantity of diluting liquor in the intestines, it not only relaxes and cleanses them, but may be said to cool the body in general; at the same time a considerable portion of the liquid is absorbed and conveyed into the mass of blood, by which means it is diluted, and in particular complaints of the bowels, clysters give almost immediate relief.

These remedies, when judiciously employed, pass directly to the parts affected, as they undergo little or no alteration from the powers of the body.

Mr. Clark farther observes, that as the diseases of horses are cured on nearly the same principles as those of the human body, the doctrines laid down by physicians for the cure of diseases in the latter are applicable to horses in similar circumstances, only it ought to be observed, for obvious reasons, that the intestines of horses should always be emptied of dung by the repetition of clysters, which have something stimulating in their composition, previous to the administering any particular medicine by way of clyster. "Nor," continues he, "is the use of clysters confined to medicines only food;

and nourishment may be conveyed into the system in this way, when a horse is unable to swallow any thing by the mouth. This I have frequently experienced in practice, and have supported horses for several days together by nourishing clysters made of thick water-gruel, during violent inflammations of the throat, until such time as they have been either discussed or suppurated."

The lacteal vessels, the mouths of which open into the inner cavity of the intestines, absorb, or drink up, the chyle or nourishment that is produced from the food that has been digested, and convey it into the mass of blood. The same process takes place when nourishment is conveyed into the intestines by the anus, or fundament, only the food requires to be so far prepared and broken down, and diluted with water, as to render it fit to be absorbed by the vessels mentioned above.

In administering clysters, it ought always to be observed that the contents of the clyster be neither too hot nor too cold, and only milk-warm, as either of these extremes will surprise the horse and cause him to eject or throw it out before it has had time to have any effect.

Previous to introducing the clyster-pipe, the operator, after anointing his hand and arm with oil, butter, or hog's lard, (observing at the same time that the nails of his fingers are short) may introduce it into the rectum and draw out the hardened dung gradually.

This operation in Farriery is termed *raking*, or *back raking*, and becomes the more necessary, as it frequently happens that great quantities of hardened dung are collected in the rectum and which, in some cases, the horse cannot void easily without assistance of this kind. The composition of clysters, Mr. Clark observes, should be extremely simple. On that account they will be easily prepared and as easily administered, if the operator is provided with a suitable instrument for the purpose. The generality of clyster-pipes that are commonly used are by far too small and too short. Although it may appear a paradox, yet it is a fact, that a clyster-pipe of a larger size than the ordinary ones, and of a proper thickness, is much easier introduced into the anus than one that is considerably smaller. It is likewise obvious, that when the pipe is too short, it renders clysters of no use, because it cannot convey them so far into the intestines as is necessary to give them any chance of being retained; a small short pipe, of six or eight inches long, is not capable of conveying the injection to the end of the rectum, which in a horse of a middle size is about seventeen or eighteen inches long. In giving injections with these short pipes, the clyster is apt to flow out at the anus in proportion to the force with which it is injected from the bag, or syringe, and this must always be the case, especially if the horse's bladder should happen at the same time to be full of urine, which frequently occurs from its being retained there by the hardened dung in the rectum, which presses against the neck of the bladder, and thus prevents the horse from staling.

It happens, further, that after the hardened dung is taken out of the rectum, by the operation above-mentioned, the bladder, being distended, and full of urine, cannot exert its contracting power immediately so as to expel its contents. It, therefore, presses up

the empty rectum and forms, as it were, a kind of tumour in it; and if the pipe is too short, it cannot reach beyond this rising in the rectum, which forms, as it were, a declivity back towards the anus, and hence the liquor flows back as soon as it is discharged from the pipe instead of passing forward. The smallness of the bag, or bladder, containing the clyster, which is generally proportioned to that of the pipe, is another very material objection to this small apparatus, as it seldom contains one quart of liquid, from which circumstance very little benefit can be derived from the use of clysters in such large intestines as those of a horse.

Bracken, in his first volume, has this very judicious remark on the use of clysters. He observes that the colon of a horse seems to be three guts, by reason of the two necks of about half-a-yard each, drawn up into many cells, or purses, by means of two ligaments, one of which runs along the upper, and the other the under side of it, which, with the assistance of a valve, or flap, at its beginning, hinder the excrements either from returning back into the small guts or falling too soon downward, before the chyle prepared from the food be taken into its proper vessels. And, indeed, the cœcum, or blind gut, which is the first of the three larger guts, seems to be so contrived, in the manner of a valve, to hinder the aliment and chyle from passing too soon into the colon; for if the aliment and chyle were not somewhat hindered in their passage through these large guts, the body could not be sufficiently supplied with nourishment.

The first of these colons is about a yard and a half long, the second about a yard, and the third, or that part which joins the rectum, near six yards in length, so that the colon of a horse fourteen hands high may be said to be nearly eight yards and a half long, and, from it along the rectum, or straight gut, to the anus, where the excrements are discharged, is not above half-a-yard, so that it is plain that clysters operate mostly in the colon, though generally they are given in too small quantities, for of what use are two quarts of liquor in a gut of nine yards long, and four or five inches diameter in a natural state; but when in a colic, it is so distended with flatulencies that its diameter exceeds seven or eight inches, as Mr. Clark has observed in those that have died of that distemper.

Large metal syringes are frequently used for the purpose of giving clysters, but of all the instruments ever invented, Mr. Clark thinks these are the most improper for horses. The shortness and smallness of their ivory pipes are not only a material objection, as has been observed, but they are apt to tear and wound the gut; for if a horse should prove restless, either from pain, as in cases of the gripes, or from viciousness, the syringe and pipe being quite inflexible in the struggle to throw up the injection, the gut may be wounded, by which a discharge of blood and other bad consequences may follow. But although there were not the least chance either of their hurting the horse, or wounding the gut, yet the force with which they throw up the liquor always causes a surprise, and, of course, a resistance, attended with a vigorous effort to throw it back, which, indeed, frequently happens before the pipe of the syringe is withdrawn.

The instrument which Mr. Clark prefers, for the purpose of giving clysters, is a sim-

ple bag, or ox-bladder, which will hold two or three quarts, tied to the end of a wooden pipe about fourteen or fifteen inches long, one inch and a half diameter where the pipe is tied, and becoming gradually taper to the extremity, where the thickness should suddenly increase and be rounded off at the point as smooth as possible.

The hole through the pipe may be made sufficiently large so as to admit the end of a common funnel for pouring the liquor into the bag. By the flexibility of the bladder at the end of this instrument, no danger can happen to the horse; whilst the clyster is conveyed so far up into the intestines that it will be retained. It causes no surprise, (provided the liquor be neither too hot nor too cold, but of the same warmth as the intestines themselves) as no other force is required to throw it up than the holding the bag a little higher than the level of the pipe, by which means the liquor flows gently into the gut without occasioning any surprise to the horse. After using the bag it may be blown full of wind, a cork put into the pipe, and hung up in some dry place to prevent it from rotting, by which means it will be fit for use on future occasions. Clysters are distinguished by different names, which denominate the quality of the ingredients of which they are composed, as emollient, laxative, diuretic, anodyne, &c. As the more general use of clysters in the practice of Farriery would be attended with the most salutary effects, especially in acute diseases, where the speediest assistance is necessary, Mr. Clark subjoins the following forms for composing them, together with the cases in which they may be administred with advantage.

Emollient Clyster.

Take of thin gruel, two or three quarts.
Olive oil,
Coarse sugar, of each six ounces.

Dissolve the sugar in the water-gruel, and then add the olive-oil.

Laxative Clyster.

Take of thin water-gruel, two or three quarts.

Glauber's salts . . 8 ounces,
Olive oil . . . 6 ounces.

When Glauber salts are not at hand, common salt may be used in its stead. A great variety of recipes might be added for making clysters, composed of the infusion of different herbs, seeds, &c. but as the above ingredients are always easily got, they will be found to answer all the intentions under this head, which is to soften the hardened excrement, to lubricate the intestines, and, by exciting a gentle stimulus, promote a free discharge of their contents, which, when once obtained, seldom fail of giving relief in inflammatory cases, spasms, &c.

Purging Clyster.

Take two ounces of senna—two quarts of boiling water.

Infuse the senna, and having strained off the liquor, add syrup of buckthorn and common oil, each four ounces.

This clyster will operate more briskly than the former, and on that account may be preferred when an immediate or speedy discharge is necessary.

Anodyne Clyster.

Take of the jelly of common starch, or of an infusion of linseed, one pint.

Tincture of opium, one ounce, or about two table-spoonfuls.

When there is reason to apprehend inflammation in the bowels, solid opium may be given instead of the tincture, from twenty to thirty grains, in proportion to the urgency of the symptoms. It ought, however, to be well rubbed in a mortar, with a little of the liquid, until it is thoroughly dissolved. The smallness of the quantity of the liquid here recommended, gives it the better chance of being the longer retained, as the good effects to be derived from the opium depend entirely on this circumstance. This clyster is proper to be given in violent gripings, attended with purging, in order to blunt the sharpness of the corroding humour, and to allay the pain usual in such cases. The starch will also, in some measure, supply the deficiency of the natural mucus, or covering of the intestines, which has been carried off by violent purging. It may be repeated if the symptoms continue violent, only diminishing the quantity of laudanum, or of the opium.

Nutritive Clyster.

Take of thick gruel, well boiled, three quarts.

When nourishing clysters are found necessary, they may be given four or five times in the day, according as circumstances may require. They are of considerable service in cases where the horse cannot eat sufficiently to support himself, nor swallow any thing, from inflammation in the throat, jaws, &c. or in convulsions, attended with a locked-jaw, &c. Perhaps milk-gruel might be substituted with advantage.

Diuretic Clyster.

Take of Venice turpentine .. 2 ounces.
Castile soap . . . . . 1 ounce.
Dissolve the soap in two quarts of warm water, then add the turpentine, previously well beaten up with the yolks of two eggs.

This diuretic clyster is of great use in strangury, and in obstructions of the urinary passages.

As it is immediately applied to the parts affected, it seldom fails of giving relief, and has a much better effect, when prescribed in this manner, than when given by the mouth, because it then mixes with the whole mass of fluids, and may lose a considerable portion of its diuretic quality before it reaches the kidnies; but, by being administered in the form of a clyster, it is readily absorbed by the neighbouring vessels, and promotes a free discharge of urine.

It is unnecessary to multiply formulæ for clysters, as the following is perhaps the best that can be adopted, viz.

Epsom salts . . 4 ounces.
Thin gruel . . . 4 quarts.

Mr Clark, of Edinburgh, observes that there are many cases where clysters may be administered with great success, besides those already hinted at, as in inflammatory fevers, spasmodic constrictions and colicky complaints in the bowels, in recent coughs, apoplexy, convulsions, paralytic complaints, swelling of the belly, whether from air or from hardened excrements. They are required also in cases where horses are troubled with worms, as the ascarides, which

lodge in the lower part of the intestines, or when bots are observed sticking in the anus, or voided with the dung; in very costive habits, before laxative or opening medicines are given by the mouth; in wounds which penetrate deep into the muscular or tendinous parts, or in the belly, &c.; in inflammation of the eyes, or when the head seems particularly affected; in inflammatory swellings on any part of the body. Clysters composed of mucilaginous substances, as starch, linseed, &c. are also of great benefit in violent diarrhœas, whether proceeding from natural causes, or from too strong purging medicines given by ignorant Farriers.

It ought always to be remembered, that clysters should be repeated frequently, till such time as the disorder for which they are given is either removed or greatly relieved. This injunction may be the more readily complied with, as the adminstering clysters to horses is not attended either with much trouble to the operator or disturbance to them.

It frequently happens in colics, and other complaints in the bowels, that a horse will dung frequently, probably from pain, &c. but in a very small quantity at once. At the same time what he passes may appear somewhat soft or loose.

In such cases the practitioner may perhaps be told by the byestanders, that clysters are unnecessary and superfluous; this, however, ought not to prevent him from prescribing them; as, in such cases, the flatulencies which occasion the disorder may be seated in the colon, where the excrements at the same time are extremely hardened; and it frequently happens, that, after the second or third injection, they are discharged in such a quantity, and in such a state, as to surprise those who were just before opposing and deriding the practice recommended. These prejudices every practitioner will have to combat, for he will frequently have as troublesome nurses to deal with as the physicians sometimes complain of, and who are no less ready with their impertinent advice. The next disease to which the intestines are subject is

DIARRHŒA

This disease, in the horse, is manifested by a constant and immoderate discharge of fæces, accompanied with pain, restlessness, and loss of appetite. After the second day the discharge is chiefly mucous, or mixed with small and hard lumps of fæces, covered with a greasy matter. When this disease has been neglected, and the evacuation has become involuntary, attended with a coldness in the extremities, a fatal termination will generally ensue. This disease may arise from a defective perspiration, from acrid matter, irritating the coats of the intestines, drinking immoderately of cold-water when heated by exercise, and sometimes from worms. It may sometimes be considered as the critical termination of some other disease. In this case it proves salutary, and ought by no means to be suddenly checked. Such medicines, therefore, should only be employed as will invigorate the intestines, and as will furnish an artifical mucus to shield their coats. For this purpose, the following drink may be given every morning for two or three mornings.

Epsom salts . . . 6 ounces,

Dissolved in two quarts of thick gruel.

Half a cordial ball may be given each night.

As has just been observed, the discharge should not be stopped by astringents, as such a practice either brings on inflammation, or else only suspends the purging for a short time, to break out again with increased violence.

The diet should consist of bran-mashes of oatmeal and bran, or malt, and the horse should have nothing but gruel to drink.

The horse should be kept moderately warm and should not be put to any violent exercise until the disease is removed.

There are some horses that are naturally so tender and irritable in their bowels, as to have a constant looseness upon them whenever they are worked, and being, at the same time, generally bad feeders, they very soon lose their flesh and become weak and unfit for service. Horses of this description may, with good management, be made capable of gentle labour, but nothing farther; the best remedy, therefore, is to get rid of them as soon as possible.

DISEASES OF THE KIDNIES

The kidney is a very important viscus in all quadrupeds, and is subject to disease from various causes. The situation and form of the kidney may be divided into two parts, the inner, which is approaching to a white colour, and is termed the tubular, and the outer, of a red appearance, called the cortical. The latter of these is very full of vessels, and contains a large quantity of the red particles of the blood, while in the other the finer and more aqueous parts of the blood only are circulating. The emulgent artery enters the kidney at its concave portion or the pelvis, ramifies most minutely through its substance and discharges in the tubular portion a fluid called urine. This fluid is conveyed by several channels into the ureters, which pass out at the pelvis of the kidney, and end by an oblique winding in the bladder. The quantity of urine secreted varies according to different circumstances, such as the state of the atmosphere and the quantity of fluid which the animal drinks. Hence more urine is voided in cold damp weather than in hot, because the perspiration from the skin is less in cold weather; and, consequently, less of the watery part of the blood is thrown out by that channel.

Some animals secrete large quantities of urine without drinking, such as hares and sheep, but their food is generally of a moist succulent nature. The blood is nevertheless the same, whether the animal drinks or not, as the watery parts are speedily separated by perspiration, or by the action of the kidneys, the blood returning after the secretion has taken place is carried from the kidney by a large vein, called the emulgent, which terminates in the vena cava. This blood differs from that which is contained in the rest of the body, by having less serum and more lymph, from the cause above mentioned.

The kidnies may be strongly affected by stimulating medicines in the quality of diu-

retics, when they are used improperly, or given in too great proportions. They may also be much injured by violent labour. Whenever the kidney is inflamed from any of these causes, it is generally attended by a discharge of blood with the urine, and indeed this is an attempt of nature to relieve herself. In this case all strong diuretics ought to be abstained from, and indeed any thing that has a tendency to irritate the kidnies. The horse should be bled copiously, and the following ball may be given.

R—Emetic Tartar . . 2 drachms
Aloes Barb. . . . 4 drachms
Castile soap . . half-an-ounce,
in a ball.

The food should consist of bran-mashes, or cut grass, or vetches, if the season of the year permits, and clysters may be given every four hours. Spirituous embrocations may be rubbed over the loins, such as camphorated spirits of wine, and the horse should not be moved out of the stable until the inflammation subsides. It will be advantageous to place him in an open box, where he can get up and down with greater ease than in a stall. The disease is known by the following symptoms. The horse stands with his legs at a considerable distance from each other; he feels much pain when his loins are pressed upon by the hand; and he frequently attempts to stale, although the bladder is empty, as the kidnies in their inflamed state secrete little or no urine.

There is also another state of the kidnies in which blood is discharged along with the urine, and this may occur without any inflammation whatever, as it arises entirely from a relaxed state of the blood-vessels of the kidnies brought on by immoderate labour.

In this case the urine is generally of its natural colour whilst the horse remains at rest in the stable, but as soon as he is brought into exercise blood is again discharged.

Diuretics may here be given, provided there is no inflammation; and those best adapted for this complaint are, Epsom salts, or nitre, given at intervals of a few hours. The salts may be given in doses of four ounces, dissolved in gruel, and the nitre to the quantity of half-an-ounce. The following ball also may be given, if thought more convenient.

R—Venice turpentine . . half-an-ounce,
Emetic tartar . . . 2 drachms.
Liquorice powder enough to make one ball with syrup.

But the best and most certain means of a cure are to turn the horse to grass for two or three months. In some instances, however, this disease is never thoroughly removed, but returns whenever the animal is again brought to hard labour.

There are other causes from which the regular discharge of urine is sometimes disturbed, or totally suspended, such as affections of the bladder. The most dangerous of these is inflammation. This may arise from a defective action of the mucous glands, situated betwixt its coats, preventing the mucus from being secreted in sufficient quantity to afford protection against the irritating quality of the salts contained in the urine. Or it may take place from strong concretions passing from the kidnies through the ureters into the bladder, occasioning great pain in their passage.

Be the cause what it may, the symptoms are generally much the same, namely, a great coldness of the extremities, frequently attended with cold sweats, and quick pulse; the hind-legs are extended wide, with a constant attempt to stale, and the urine continually discharged, but in small quantities. This arises from the kidnies continuing to secrete urine, and the smallest quantity entering the bladder is sufficient to irritate its coats, and to keep up the constant endeavour to discharge it. In this disease no time is to be lost; but, unfortunately, it is very generally mistaken for a suppression of urine, and diuretics are in consequence very improperly given, as they only tend to increase the mischief by stimulating the kidnies to form a larger quantity of urine, and thereby adding greater distress to the bladder.

The inflammation may be removed by frequent bleeding, according to the strength of the animal. His drink should be mucilaginous fluids, such as the following:

R—Linseed bruised . . half-a-pound,
Boiling water . . 2 gallons,
let these stand until nearly cold, and strain the liquor through a coarse cloth, then add
Gum-arabic . . . 4 ounces,
previously dissolved in a quart of boiling-water. Stir the whole well together for use.

A quart of this mixture may be given every four hours, or may be used as his common drink. Large clysters of warm water may be thrown up the rectum with great benefit.

Opium has sometimes been found serviceable in this disease, and, when necessary, may be given in the following manner:

R—Opium in powder . . 1 drachm,
Linseed powder . . . half-an-ounce,
Mucilage of gum-arabic, sufficient to make a ball.

This may be given every other day, but if the disease proceeds from calculi, there is not much probability of effecting a cure. All that can be done is to mitigate the symptoms by the above remedies.

In spasmodic constrictions of the neck of the bladder, the symptoms are similar to those of inflammation in the kidnies, the suppression of urine which attends it being only an effect of the disease. This affection of the neck of the bladder very often arises from the animal being obliged to retain his urine whilst he is travelling, and hence the bladder becomes so much distended as to lose its power of contracting.

It may easily be distinguished from inflammation in the kidnies, by introducing the hand into the rectum so as to ascertain whether the bladder be full or empty, and if much distended, and not speedily emptied, it may become paralytic, and finally incapable of any contraction whatever.

In this state of the bladder, the use of diuretics must be hurtful in the extreme, yet they are but too often resorted to by those who have not sufficient judgment to distinguish diseases.

Clysters of warm-water will generally be found useful, and warm fomentations with hot flannels may be applied to the perineum, just below the fundament. These fomentations should be persisted in for at least half-an-hour at a time, taking care to add fresh hot water occasionally, so as to keep up a sufficient heat in the fomentation.

If these methods fail of giving relief, the last resource is to make an opening externally into the perineum.

The acute angle which the urethra describes from the bladder to the sheath, or prepuce, renders it difficult to introduce a catheter, as is practised with the human subject, on this account a staff may be passed up the urethra till it reaches the middle of the perineum, and an incision may be made down upon it, and a bougie, or catheter, may then be introduced through the incision with greater facility. In all cases of diseased bladder, fomentations on the perineum, just below the fundament, are useful. It is advisable also to keep the bowels open by gentle purgatives, but the horse should be kept perfectly quiet in the stable, and not be suffered to move out until the disease has disappeared.

It is possible that affections of the bladder may sometimes arise from a stone having been formed therein. Mr. Clark, of Edinburgh, says, "Although there are no cases upon record, in books of Farriery, ascertaining the fact of stones being found in the bladders of horses, equal in size to those that are found in the human body, yet, from a variety of symptoms that I have observed about horses, and the frequent attacks they are liable to of a suppression of urine, together with the great difficulty some horses have at times in staling, I have always thought there was reason to believe that many of them labour under this disorder, in a greater or less degree; but I have now the most undoubted proofs that horses are subject to calculi, or stones in the bladder, as I have several of them in my possession that were taken out of the bladders of different horses after they were dead. Some of these stones are of a considerable size, and weigh ten ounces; others of a smaller size, which, from their concave sides, and other appearances, evidently shew that there was a number of them in one bladder at the same time, as they have the same figure and shape that a number of clay balls would have when pressed together. That they have stones in their kidnies is very well known. The same is observed in the kidnies of sheep and oxen. It is likewise well known that some horses pass a considerable quantity of gravel with their urine, and that they are subject to gravelly complaints. Hence it may be inferred, that as the food of horses is exceedingly simple and uniform, the calculous concretions that are formed in the urinary passages and in the bladder may proceed from the water they drink."

The foregoing is the opinion of Mr. Clark, of Edinburgh, who is a very sensible writer, as well as an experienced practitioner; and, in addition to his observations, it may be supposed that the horse feels less inconvenience from a stone in the bladder than the human being, on account of the horizontal position of his body preventing the stone from dropping on the mouth of the bladder so as to obstruct the passage of the urine. The best mode of ascertaining the existence of a stone in the bladder, is by introducing the hand into the rectum after it has been cleared from the dung which it contained, and by pressing the hand downwards on the bladder, the stone, if there is any, may be felt.

In regard to the operation of cutting for the stone in the horse, the author of this treatise does not recollect any instance ex-

cept one, which was performed at Mr. Moorcroft's, some years ago, and which, although it was executed with great skill and attention, did not succeed.

Stones, or earthy concretions, are frequently found in the intestines of horses. These generally lodge at the blind end of the cœcum, or large gut, and so long as they remain stationary do not occasion much inconvenience, although they sometimes increase to an enormous size.

Dr. Withers, of Newbury, made the following communication upon this subject to the medical society of London:—"Many years ago," says he, "I gave the late Dr. Hunter a large intestinal stone of a horse which proved fatal to the animal; and some years afterwards, I saw an engraving of a section thereof in the doctor's possession. Subsequent to this period, a similar instance happened in this neighbourhood, and what seemed singular was that the horse belonged to a miller. This circumstance excited my attention, and from enquiry I found that their horses were more liable to this disease, which observation I have long noticed to my medical friends. Their food, I am informed, is chiefly composed of bran and split-peas, the mucilaginous part of which is a favourable medium for associating the strong particles abraded in trituration. Another circumstance may also contribute towards the generating these concretions, their horses are generally watered at a river, and for the most part below the mill. This water being in constant agitation, by the rapidity of the stream necessary tor turning the wheel, must of course raise and keep afloat small sandy particles, many of which must be taken into the stomach. I am the more confirmed in this opinion by conversation I have had with a friend of mine, who constantly keeps upwards of a hundred draught-horses, none of which he has ever lost from this disease. His manner of feeding is to give them bran, oats, and beans, either whole or split, by means of a steel-mill.

"Some years since, when attending the late Mr. Andrews, a miller, he informed me of his having a very valuable horse ill of the colic, and which he supposed would die. I told him that if he would have the intestines examined after death, he would most probably find a large stone in them, which was the cause of the horse's illness. He, however, ridiculed the idea, and neglected to examine them, but on visiting him a few days after, he produced a large round stone broken, and informed me that the dogs, in eating the intestines, had made the discovery. Since the death of Mr. Andrews, his son has lost a valuable horse from the same cause. He tells me that his father had reason to believe that, in his time, he lost two more valuable horses from the same disorder.

"To these instances of the loss of millers' horses, I could add many others, proceeding from the same cause. Mr. Andrews has, by my advice, for several years past changed the diet of his horses. He gives them bran and beans not split, with a certain proportion of chaff; he supposed the beans to contain the greatest portion of stony particles, as they are ground by stones softer than those which are used for grinding wheat. Since this time he has no reason to think that any of his horses have stony concretions formed in their bowels, nor such appearances in their dung

as he recollects to have observed formerly."

The foregoing detail is strongly corroborated by many similar instances in other parts of the kingdom, of millers' horses dying suddenly from obstructions in the intestines arising from stony concretions.

THE STOMACH

of the horse is, as well as in all other animals, an organ of the first importance. In the horse it differs from most other grazing quadrupeds, as it consists of one pouch, or bag, only, whereas in those that ruminate, or chew the cud, it is generelly divided into four compartments.

In its shape it somewhat resembles a bagpipe, but is larger on the left side than on the right. Its magnitude is, generally speaking, in proportion to the size of the horse, although it is small when compared with that of other animals.

It is furnished with three coats, the outermost of which is the peritoneum; the second is muscular and fleshy, and the last a continuation of the innermost coat of the œsophagus, or gullet, which goes from the mouth to the stomach, and begins at the root of the tongue, behind the head of the windpipe. At that part where it enters the stomach, it is composed of a pretty thick substance, made up of circular and fleshy fibres, by which it contracts and dilates. This is called the left, or upper orifice of the stomach, and that whereby it discharges itself into the duodenum is its right or lower orifice.

A great part of the stomach of the horse is insensible, in consequence of a cuticular covering, and differs of course from the villous portion of that viscus. This insensibility prevents irritation from hard food. The œsophagus, or gullet, is constantly, unless at the time of swallowing, drawn into longitudinal folds. This contraction prevents any return of the food, and also precludes the possibility of vomiting, from its acting as a valve against any substance that might be rejected by the stomach. Vomiting, indeed, would produce suffocation in the horse, as, owing to the peculiar structure of the superior portion of the pharynx, the food which was thrown up must necessarily drop into the trachea, or windpipe.

That part of the stomach which is not lined by cuticular membrane is extremely vascular. It occupies the posterior part, and is of the greatest importance to the animal œconomy. The gastrica dexter and sinister are continued in this membrane. Its surface is glandular and it secretes the gastric juice. This juice is the principal agent in digestion, and acts alike upon all animal and vegetable substances that are taken into the stomach, and is so powerful as even to consume a part of the stomach itself after death. The mass which is produced by the action of the gastric juice generates a fluid, which is called chyle, and which is always the same in its quality, notwithstanding it may arise from a great variety of food. The gastric juice coagulates milk, and it must undergo this process in the stomach before it can be digested, yet the gastric juice has no effect on animal substances that are alive, and this accounts for the circumstance of bots living in the stomach of the horse. These insects attach themselves very firmly to the cuticle of the stomach, or the insensible part, by two hooks situated near the

tail. In this situation they occasion little or no inconvenience to the animal.

These insects appear to be insensible to pain, as even the most caustic and stimulating medicines will not dislodge them. This may in part arise from their bodies being covered by a kind of hairy spiculæ which prevents any fluid entering into contact with the surface. Very few horses are free from bots at a certain part of the year, and it appears as if the stomach had been destined as the receptacle and support of those insects.

Mr. Bracy Clarke has lately published a very elaborate and satisfactory treatise on the different species of bots which infest not only horses, but cows, sheep, and deer. According to his experiments it appears that the old notion of the fly depositing its eggs in the fundament of the horse is both erroneous and absurd, and indeed it appears extraordinary how the insect could afterwards make its way into the stomach through the intestines, and that too in opposition to their peristaltic motion.

The reader will find both amusement and information in this valuable work of Mr. Clarke's.

The stomach of the horse is liable to inflammation, yet not so much so, perhaps, as that of the human being. Inflammation of this organ is attended with extreme pain, the pulse is hard, the patient thirsty, he lies down and looks constantly towards the part affected. In this case large quantities of either solids or fluids are injurious.

Bleeding should be practised to a considerable quantity, and the external surface of the belly should be stimulated by rowels, or blisters.

The surface of the body should be kept warmly cloathed. Sheep and oxen are subject to a preternatural distension of the paunch, from taking in too large a quantity of food. If not soon relieved death ensues. Fermentation takes place and a considerable quantity of air is generated, which materially increases the disease. With a view to giving relief, it is sometimes the practice to pierce with a knife, or some other sharp instrument, into the stomach, between the last rib and the hip-bone. As soon as the orifice is thus made, the inclosed air rushes out, and the muscular action of the stomach being restored, the animal is instantly relieved. Sometimes, however, a part of the food is forced out along with the air, which, if it enters between the stomach and the cavity of the belly, acts as an extraneous body and produces an irritation and inflammation which generally proves fatal. Dr. Monro recommended the introduction of a flexible tube through the mouth into the stomach, but it has not been much adopted, as the country people generally prefer the summary method of piercing into the stomach.

The stomach in the human being is affected by sympathy from complaints in other parts, such as the gout, &c. but it is doubtful whether the horse is ever affected in the same way This may, perhaps, arise from so small a portion of the stomach being vascular and endued with sensibility, and also from secreting so little gastric juice. It is not an easy matter to produce nausea in a horse. Hellebore and aconitum, to the quantity of half-a-drachm, it is said will bring on efforts to vomit. Four ounces of emetic-tartar have been given without exciting nausea. Cerussa acetata, to the amount of half-a-pound, has been given without any perceptible effect,

and the same experiment has been made with aqua litharg. acet. in a proportionate degree. Jalap and bitter-apple have been given in large doses without any obvious consequences. Corrosive sublimate has also been administered from fourteen grains to three drachms and a half. From this last quantity inflammation arose in the stomach, and coagulable lymph was thrown out.

Calomel purges irritate the superior part of the pharynx and the mouth, but do not seem to affect the salivary glands. There is, however, considerable danger in using it in large quantities.

Opium may be given in very large doses. Four ounces have been administered at a dose.

Tobacco in every form has been employed, even an infusion of three pounds have been introduced into the stomach without effect. Vitriolated zinc acts as a tonic when used in moderate quantities; the dose may be gradually increased to half-an-ounce.

The lacteals take up a fluid, called chyle, and convey it through the lymphatic glands, where it seems to undergo some change, into the thoracic duct, from thence they proceed in the horse to the left jugular vein, but in the human to the left subsclavian. This process renews the blood after its various losses. It has been doubted whether the absorbents take up the chyle by capillary attraction, or by some voluntary action of their own.

Having gone thus far into the animal economy of the stomach of the horse, it will not be irrelevant to offer a few remarks on the general system and consequences of administering medicines in disease. That this is often done unnecessarily, and, of course, mischievously, has been very ably shewn by Mr. Clark, of Edinburgh, in the following observations:—

"If," says he, "a man or a horse be in a state of health, what more is required, or how can they be rendered better? Health is the most proper state of an animal body, and it is not in the power of medicine either to make it better, or to preserve it in the same state. A good medicine, given seasonably, when there is an appearance of some latent disorder, or some derangement of the body, which would, in a short time, occasion its breaking out, may prevent it from taking place by carrying it off. The same medicine given in health will produce an alteration in the system by increasing, or diminishing, some of the natural secretions, or disturbing the animal functions, or even allowing that it did not produce any of these changes, still it leaves the body just as liable to disease as before. Besides, the custom of giving medicine too frequently is a bad one; they become, in time, habitual to the constitution, which circumstance renders them totally inefficacious when necessary, or, at least, it greatly reduces their effects.

The medicines commonly administered to horses by way of preventives, are generally composed of aromatics, spices, &c. under the denomination of cordials. These are said to heat and invigorate the stomach, and thereby promote digestion. But if a horse is otherwise in health, this desirable end is brought about in a much more natural way by proportioning the food to the labour which the horse undergoes.

Other medicines are given to horses in health, under the title of alteratives, which are totally unnecessary, except the animal be in a state of disease. These alteratives

are supposed to change the humours, or juices, of an animal body from a morbid, or diseased, state to that of health. They have no immediate perceptible effect, but gain gradually on the constitution, and are followed (if the viscera are sound) with the most salutary effects, by increasing the natural secretions.

But in this case, a disease is implied, and, of course, such things may be necessary and proper. Thus antimony, in its different preparations, mercury, sulphur, aloes, and salts, are alterative remedies. The former of these, especially the coarser kinds, are generally given too frequently, in too great quantities, and in too gross a state, which sometimes brings on great sickness, or violent purging; and, in some constitutions, instead of promoting the secretions by the skin, they occasion a great heat and dryness, which is frequently succeeded by the appearance of hard lumps, or blotches, on different parts of the body.

Mr. Clark says, that sulphur not only opens the body, but readily makes its way through the pores of the skin, and therefore should be used with caution, as horses are very apt to catch cold on too liberal an use of it.

Aloes given in small quantities, by way of an alterative, and too frequently repeated, weakens the stomach and bowels, so as to bring on a lax or, what is called, a washy habit of body; it ought therefore to be given only to horses of a robust constitution, and newly taken from late grass, or that have been accustomed to foul feeding, as grains, chaff, &c.

The neutral salts, especially nitre, or common salt, are the best and safest alteratives that can be given to horses. They seem to agree with the constitution, and have this advantage, that they require no clothing or confinement, nor is the free use of them attended with disadvantage. Still it would be absurd to prescribe even these without some apparent cause.

Nitre is of great service in all inflammatory complaints, it not only allays the great heat of the blood, but promotes the natural secretions, particularly that of urine, and is one of the best and safest medicines that can be given to horses on such occasions. Common salt given to horses which do not appear to thrive when there are no symptoms of an inflammatory disease, has a very good effect; it promotes digestion, and the natural secretions, it makes them take on flesh and coat well. Antimony is useful as an alterative, but the coarser kind is ill-prepared, and frequently as injudiciously prescribed. If coarse and black, like gun-powder, it should always be rejected.

The best is ponderous, and composed of long shining needles, and this, if levigated into fine powder, may be given with safety. Medicines exhibited in disease also require caution and discrimination. In speaking of the treatment of sick horses, Mr. Clark says, "It is amazing what different kinds of compositions are forced down horses' throats on these occasions, of which the following is a striking instance:—A gentleman in London was greatly prejudiced in favour of vinegar as a cure for many diseases. His favourite horse was taken ill in very warm weather, and as he thought vinegar was a very cooling thing, he ordered a pint of it to be given to his horse at once. It was no sooner swallowed than the horse lay down, stretched himself out, and died. Unluckily the nature

of the horse's complaint was not known, as the owner would not suffer him to be opened. As I never knew, or heard, of any other instances," continues Mr. Clark, "where such a quantity of vinegar was given at one time, I cannot take upon me to say what effects it may produce, but it is very probable that in the instance just mentioned the coats of the stomach had been inflamed, and in that case the sudden application of such a powerful astringent as vinegar was very likely to cause immediate death."

Another case of sudden death is recorded by Mr. Clark as follows:—"On visiting a horse that had been ill for some days, (says he) I found the servant giving a drink when I entered the stable, which I was afterwards informed was composed of an infusion of lintseed, in which was dissolved an ounce of nitre, with some honey to sweeten it, and into the last hornful was poured, from a small vial, about half-an-ounce of spirit of hartshorn.

The horse seemed very uneasy after the drink, he was soon seized with a violent trembling and shaking, a profuse sweat broke out all over his body, and ran down his sides; at the same time, his legs and ears were quite cold; he laid down seemingly in great agony, was soon convulsed all over, and died in about half-an-hour after the drink was swallowed. On inspecting the stomach, the coats were found to be greatly inflamed. A mortification had taken place on one side, where it appeared of a darker colour, like that of the liver, at the same time it was considerably distended and full of food. On turning it inside out, an incredible number of bots were found sticking all round the sides and lower parts, as close to each other as they could possibly be, and such firm hold had they of the stomach, that in endeavouring to pull some of them off when alive they broke in two, and their heads remained sticking behind."

The author supposes there had been a previous tendency to a mortification, which would soon have occasioned the horse's death, but he thinks there was every reason to believe that the drench had hastened it. He makes one remark, which is, that the horse was very fat and just out of the dealer's hands.

When horses are ill, it is too common a practice to mix medicines, such as nitre, in their water. The disagreeable taste thus given to the water prevents them from drinking, and hence they suffer considerably for want of fluids to quench their thirst, and to promote the necessary secretion of urine. On the contrary, every means should be tried to tempt horses to drink freely in such cases, and sometimes it may be forced on them by pouring it down their throats with a horn; for as most of the diseases to which horses are subject are of the inflammatory kind, and the thinner parts of their fluids are carried off by the strong perspiration they are exposed to from the nature of their exercise, whenever they are seized with acute diseases, their fluids are then more disposed to be thick, viscid, and inflammatory; therefore as water is the principal diluter of the fluids in general, in such cases a considerable quantity of it at this time becomes highly necessary, and in some cases may be the best medicine that can be given them. In cases where horses refuse warm-water, it may be given cold without much danger, by first mixing a little oatmeal with it, and giving it in a small quantity at a time. "I was once," says Mr. Clark, "called to a horse that had

been drenched with what was called a pissing drink, for a swelling in his legs. The drench, I was informed, consisted of eight ounces of yellow rosin, in powder, a tablespoonful of oil of turpentine, and about half that quantity of oil of juniper, in a quart of forge water. The horse was very sick, he refused both food and water, his pulse was hard and quick, his mouth dry and parched, his legs and ears cold, and his belly greatly distended. He was immediately blooded, and a clyster was at the same time administered, and half a pailful of lukewarm water was poured by a horn into his stomach, after which he appeared to be considerably relieved. He then staled a little, his urine being red in colour and very thick. Water was then offered him, of which he drank with more freedom. He afterwards began to stale very profusely, and which continued, with short intervals, for the space of twenty-four hours, which reduced him so considerably that it was some time after before he recovered his flesh and strength. From this case it appears that in instances where medicine has been given improperly, or in too large doses, the best mode of relief is to dilute, as much as possible, by drenching the horse with warm water in case he refuses to drink.

In the foregoing case it is probable that the diuretic drench had remained in the stomach undecomposed, especially as the rosin was nearly double the quantity that should have been given even to the most robust horse. As the drench could not be thrown up again by the mouth, (a horse having no power to vomit) the pouring water into the stomach contributed to dilute and protrude it out at the lower orifice into the intestines, where it was absorbed, and, in the course of the circulation, carried by the renal vessels to the bladder. The bleeding contributed to remove the spasmodic constriction which had taken place, and the clyster was of use in emptying the intestines, particularly the rectum, and thereby removing the pressure from the neck of the bladder, and facilitating its power to expel its contents.

Next to the bad effects of giving medicine improperly, may be classed the impropriety of the modes of feeding horses as adopted in many stables. When the animal ranges in the fields he has the liberty of choosing his food, as well as the power of helping himself, whenever he feels prompted by hunger so to do; but the case is very different with him when he is confined in the stable, where he is obliged to eat what is offered to him, and at such periods as his keeper may think proper. Hence it often happens that after long fasting the horse eats so voraciously as to overload his stomach, and much inconvenience and danger ensue. There is also a considerable difference in the quality of the food which he eats in the stable, which having undergone the process of drying, becomes less digestible than when it is in its green state.

There is also a great difference in the wholesomeness of the food, both in regard to hay and oats; and from all these circumstances the animal incurs a greater risk of being disordered than when he remains in the fields in his natural state.

Hay is the principal fodder used for horses in this country, and although there are a great number of herbs and grasses mixed with it, yet they are all included under the general denomination of hay, the only distinction being that which is made between

meadow-hay and rye-grass-hay. When the grass is cut and dried to a certain degree, it is collected together into a large heap, where it undergoes a regular fermentation, and acquires a sweetness of taste and smell somewhat similar to malt. When this fermentation has been carried on to any extraordinary degree, it acquires a browner colour and a smell of treacle, and it is then called *mow burnt* hay. Horses and other cattle are very fond of it, and generally eat it very greedily. The sugar contained in it produces thirst, and occasions them to drink more than they usually do with other food, and hence it has the property of fattening the animal more expeditiously.

The hay made from rye-grass is of a harder and coarser nature, and is not so succulent nor so nutritive as the meadow-hay. But, whatever may be the nature of the hay, it is of the utmost consequence that it should be sweet and wholesome, and not mouldy, as there can be no doubt that bad hay lays the foundation for disease. Clover is a good substantial food, and the best mode of using it, is to cut it small with a chaff-cutter and mix it with bran and a few split-beans.

Wheat-straw is principally used as litter, although it is somtimes cut into chaff for food, but it contains little or no nourishment, and serves but to fill the stomach without producing much chyle. Barley and oat-straw are given to horses and cattle in straw-yards, and as there is generally a good deal of grass among it, from the land which bore the grain having been laid down with seeds, it is a good and substantial fodder.

New hay, of any kind, is a very pernicious food for horses, and from its indigestible qualities it has the effect of producing disorders in the brain from sympathy with the stomach, and which sometimes terminate in the staggers.

Grass is the most natural food for horses, but it must be admitted that they are not so capable of enduring great labour and fatigue whilst fed with it, as they are when kept in the stable upon hay and oats. This arises from the great moisture and succulence of the grass increasing the animal fluids, and producing a degree of fatness which adds to the weight of the horse without increasing his strength. It also diminishes the powers of free respiration, by loading the vessels, and in this state the animal may, with great propriety, be compared to a fat alderman when matched in a race with a lean active rustic. It is, however, of the most essential benefit to turn horses to grass occasionally, not only in regard to a change of diet, but also to a change of air. The spring-grass acts as a natural purgative, and carries off various unhealthy concretions, that sometimes collect in the intestines of horses that are long confined to dry hard food. It also facilitates the evacuation of worms, particularly the ascarides, and it renovates, in a striking degree, the whole mass of fluids of the body. It is certain that nothing so soon re-establishes a lean, overworked horse, as grass, a change which sometimes cannot be effected in the stable, even with the best hay and oats, and the most attentive grooming.

Many persons have a great aversion to turning out horses, alleging that it exposes them to numerous accidents which they might escape by being in the stable, besides, as they term it, throwing them out of condition, and requiring at least a month after

they are taken up to bring them again into a proper state for work. In opposition to these objections, the following arguments the author conceives may have some weight. In the first place, the whole system of nature plainly indicates an alternate succession of opposite extremes, both in the seasons and in every thing else

It is this succession of summer and winter, heat and cold, wet and dry, that recruits and supports every living object, both in the animal and vegetable kingdom. It must be evident, therefore, that the practice of keeping a horse perpetually in the stable, and invariably upon dry food, must be more or less unnatural, and, consequently, in some degree, prejudicial to his health and animal œconomy.

That it is injurious to his legs and feet is pretty evident from general experience, and the perpetual costive state of his intestines must be no less injurious to his eyes and lungs.

In regard to the concretions found in the intestines of animals, it appears that Glisson, a celebrated naturalist, frequently found incrustations like gypsum, or plaister of Paris, in the *pori biliari,* and the larger branches, dispersed through the livers of oxen that had been fed in stalls with dry food through the winter season, and without exercise. These concretions were friable, and would dissolve again and pass out of the body when the cattle came to feed upon the fresh grass of the meadows, for in those oxen that are slaughtered in spring and summer, these substances are very rarely found.

Mr. Clark, of Edinburgh, also states, that in dissecting horses he frequently met with chalky concretions in the liver and in the lungs, especially in those animals that had been fed long upon dry food. In other instances he found round or oval balls in the stomach, composed, apparently, of the dust which they lick from their own bodies, mixed with hair. Whether the fresh grass dissolves these concretions, he says, is not so certain, but that it causes them to pass through the intestines, he had ample proof in the following fact. "In May, 1786, a horse that had been long fed on dry food, was turned to grass; in about eight or ten days afterwards he was seized with violent griping pains, which lasted about twenty-four hours, when he died. As the horse was very fat, the man who had the charge of him wished to make some profit of his grease. Upon opening him he observed a large portion of intestine of a very black colour, and on feeling it found something hard and weighty. The intestine was then slit open and a ball taken out of it which measured four inches in length and hree inches and a half in breadth. That this concretion was originally formed in the stomach there can be no doubt, as they f e quently, upon dissection, have been found there, and nothing but its great bulk had hindered it from passing through the intestines."

Mr. Clark further observes, with respect to the properties of spring-grass, that those horses that cannot be turned out to pasture, should have it given them in the house as soon as it can be cut. A change of diet, he says, is not only agreeable, but wholesome to horses, as it contributes to keep them open in the body. Malt mixed occasionally with their food proves medicinal.

Wheat is seldom given to horses. Its high price would alone be sufficient to preclude its use, but there is another consider-

ation against it, namely, its being unwholesome. From its abounding with so much mucilage as to render it very difficult of digestion on account of its cohesiveness in the stomach. The author of the present treatise was once called in to a waggon-horse that was dangerously ill with an affection of the brain, apparently the staggers. Strong purgatives, combined with clysters, were given, but with no effect, and in the course of a few hours the animal died.

On opening the belly, the stomach was found amazingly distended with a hard solid mass, and which, upon examination, was found to consist of wheat in a half masticated and undigested state

On an investigation into the affair it turned out that the waggoner, with that predilection which they all have for a fat and sleek appearance of their teams, had been in the habit of robbing his master's granary of wheat to give his horses, and that having given the horse in question too large a quantity at once, the fatal effects just mentioned ensued.

Barley purges horses at first, especially if it is not sufficiently dried by age, but it is nevertheless a good and wholesome food. Not only the Arabian, the Barbary, and other eastern horses eat it, but it is also the common diet of horses in Spain and Portugal, and in some parts of France, and enables them to perform as much labour as is performed in any other part of the globe.

There is, however, a strong prejudice against its use in this country, but it is certainly without any rational foundation.

Oats are the general provender throughout Great Britain. They are frequently mixed with beans, especially for carriage and post-horses. It is certainly of a heating quality, but the ill effects of it are carried off by the strong exercise which they undergo. By this rule beans should never be given to horses that stand much at rest. The constant feeding with oats is apt to make horses extremely costive; it is a good practice, therefore, to give them bran-mashes once or twice a week.

Beans may be rendered easier of digestion by boiling them, or by wetting them occasionally, so as to excite that degree of fermentation sufficient to make them sprout.

Buffon says that the Tartar horses will travel two or three days without stopping, receiving but two or three handfuls of herbage every eight hours, and at the same time kept without water for twenty-four hours. The Arabian horses, he observes, are rather meagre than fat. During the day they are not permitted to eat, but are watered twice or thrice. At sun-set a bag, containing about half a bushel of barley, is passed over their heads and fastened to their necks. This bag is not removed till the next morning. When the grass is good they are turned out to pasture, and during the rest of the year they are allowed neither grass nor hay, barley being their only food, and that confined to a moderate quantity

Nemesian recommends straw and barley as very nourishing diet, and it certainly conduces very much to keep horses in health, spirit, and wind, and in a state of body fit for any kind of labour, as it supports and strengthens without rendering the animal heavy and cumbersome.

Mr. Clark, of Edinburgh, mentions two instances of horses having died from excessive eating. "A young draught-horse was

fed in the morning with too great a quantity of barley mixed with pease, and had been allowed to drink water immediately after. After having travelled a few miles, he was observed, about the middle of the day, to be very uneasy, frequently attempting to lie down. As soon as he was unharnessed, he laid down, and rolled about, frequently lying on his back, starting up suddenly, and turning his head towards his belly. He continued in this manner, in great agony, till towards the next morning, when he died. Upon opening his body, the stomach was found burst, the barley and pease mostly entire, only greatly swelled, and the whole contents of the stomach, which were very considerable, spread through the abdomen.

The other case was that of a horse that had been fed with too great a quantity of oats and barley, and had been allowed to drink water freely afterwards. He was seized with griping pains, so that he frequently lay down, and, apparently, in the greatest torture. He died on the next day. Upon opening his body, the stomach was found distended to a most enormous size, but was not burst. Its coats were stretched so very thin, from the great distension it had undergone, that its cohesion was almost destroyed, and it had more the appearance of a coat of mucus and of slime than the stomach. The oats and barley were, for the most part, entire as they were swallowed, only greatly swelled from the moisture they had imbibed.

It appears sufficiently evident from these cases, how essential it is to the health of the animal not to permit him to eat too much at once.

His food, be the nature of it what it may, should be given in small quantities at a time, and repeated as often as occasion may require.

It is, undoubtedly, a good practice to mix chopped-straw, or hay, with the grain, as it makes the horse chew his food more thoroughly, as well as prevents the grain from sticking together by its glutinous quality and forming one solid mass, so as to be incapable of digestion.

Lord Pembroke, in his sensible treatise on horses, adverting to this practice, says, "Every grain goes to nourishment, none is to be found in the dung, and three feeds of it go farther than four that are given in the common way. But wheaten-straw and a little hay sometimes mixed with it is excellent food. To a quarter of oats the same quantity of chopped straw may be added.

Owners of horses, however, should be careful not to run into the opposite extreme of starving them, for that circumstance, combined with hard work, soon brings them into a state unfit for labour, as well as disposes them to disease. A starved horse becomes weak and languid, and the circulation of his blood faint and feeble. Dropsical swellings appear in different parts of his body, and especially in the legs, and the horse sinks under a complication of diseases, which are the result of an impoverished state of the blood and juices.

Horses that are constantly fed upon dry food are frequently subject to a deranged state of the intestines, from the extreme costiveness which attends that kind of diet. Whenever this occurs it is the common practice to give hot medicines, such as gin and pepper, or opium, the effect of which tends but to increase the costiveness.

Some persons are of opinion that hay can-

not be too old. This, however, is a very erroneous idea, it being pretty certain that it loses its juices and flavour after the second year, and thence becomes neither so nutritive nor so digestible. Hay is never better than when it is about one year old.

The next point to be considered, in regard to the health of the horse, is exercise. When the animal is in a state of nature and at liberty, he generally and spontaneously uses exercise enough to keep off those disorders which arise from sluggishness and inactivity. But it is far different with him when confined in the stable, in which situation he is obliged to breathe a considerable quantity of foul air, arising from the vapour of his own body and the dung and urine, which even in the best regulated hunting establishments must exist in a greater or less degree. This pernicious atmosphere, combined with confinement, perhaps for twenty hours out of the twenty-four, must undoubtedly have a great influence in deranging the general system, and must ultimately be the cause of producing disease.

These evils must naturally be aggravated by the foolish custom of feeding horses in the same proportion whether they work or not. Thus when the stomach is loaded with food which it cannot properly digest, the food is detained too long in the bowels; hence arise indigestion, flatulency, and costiveness. The intestines, in this loaded state, press upon the adjacent viscera, and obstruct the circulation of the different fluids in them. The liver, mesentery, and spleen, are exposed to be injured from this cause, their natural functions are impeded, the animal economy is disturbed, and when this is the case the constitution must be injured, and diseases ensue. The natural secretions are not in due quantity, they, together with the perspiration, are retained in the body, and are absorbed, or taken up again into the mass of humours, and hence arises another sourse of disease.

The circulation of the blood through the whole system is slow and languid, hence the juices are not properly prepared; glandular obstructions are formed in different organs of the body; the sheath and legs swell, running sores takes place in the latter, commonly called grease, and the whole mass of fluids is greatly disposed to putrefaction

On the other hand, constant and habitual exercise renders the body strong and active, and, at the same time, fit for the most violent exertions; it assists the heart in promoting a free circulation of the blood and juices through every part of the body; it creates an appetite, and promotes digestion, and thereby greatly assists in converting the food to nourishment; it promotes the secretions and excretions, which enlivens the body, and gives room for fresh supplies of nourishment; it invigorates the whole system; it gives a flow of spirits, and adds firmness and strength to the muscles and sinews. In short, without a certain portion of exercise, no animal body can long be in a state of health.

The effect of exercise upon horses, however, is not limited to the preservation of their health, but even in many cases of incipient disease, its good effects soon become visible, for instance, in swelled legs, which arise from too long standing in the stable; and although this state of their limbs is generally ascribed to humours, or a foul habit of body, and it is thence concluded that nothing but strong purgatives and diuretics

can remove it, yet it has often been proved that regular exercise, combined with frequent hand-rubbing of the legs, and with a roomy stall or open box to lie down in and stretch their legs at their ease, have been sufficient to restore a state of health without any medicine whatever.

Horses that have been pampered and kept idle, should, however, be brought into exercise by degrees, for all sudden changes, whether from idleness to exercise, or from exercise to idleness, produce considerable changes in the system, and render both the solids and the fluids liable to disease.

This we experience from our own feelings, and it is the same with horses when they are first set to hard labour, although they cannot express their uneasy sensations except by the stiffness of their limbs, and their contracted steps, which may be perceived on moving them after a hard day's work. They should, therefore, be accustomed gradually and regularly to exercise or labour, and it then becomes easy to them, nor will any stiffness or difficulty of breathing follow from it, and when a horse has arrived at this state or habit of body, he is pronounced, in the language of the stable, to be in condition. But one great source of disease in horses arises from the improper treatment of them after they have been overheated by labour, and there are none which are more exposed to this bad custom than horses which work in mail-coaches or post-chaises. These poor animals, at all seasons of the year, may be seen tied up in an inn-yard to the stable-door, for the purpose of cooling and drying their skins, and most generally after being first ridden through a brook, or a horse-pond, nearly as high as their backs. That the animal ever outlives this abominable treatment is certainly extraordinary: it is, however, an incontrovertible fact, that it kills great numbers of them by producing violent inflammatory attacks on the lungs or the intestines, which carry them off in a few hours, or else it lays the foundation for the farcy, or other glandular diseases, which arise from suppressed perspiration. By being thus exposed to the action of the cold, arising either from the air or the evaporation of their own bodies, the blood-vessels contract suddenly, and hence violent exertion is produced in the heart and lungs to relieve those parts from the extraordinary quantity of blood which is thus thrown upon them.

This increased action, if long continued, produces inflammation and, very frequently, mortification in those viscera which are affected.

To avoid these consequences, it behoves every coach and post-master, to prohibit this abominable custom of washing their horses with cold water when heated by running a stage; but, as this ceremony always takes place when the horses are necessarily from home, the proprietors should execute the task of seeing the prohibition enforced for each other on their respective premises, and thus the evil would soon be corrected. Sportsmen, in hunting, should avoid, if possible, riding their horses through brooks or rivers during the chase, although it is less likely to be injurious in those cases, because the exercise is afterwards continued, by which means the circulation of the blood is never lowered so as to permit the body to experience the sensation of cold.

Many cases have occurred of horses losing their hoofs from inflammation, arising from the sudden effect of the cold on the blood-vessels of the feet, and the violent re-action

of the circulation breaking down as it were their natural texture, and producing a separation of the laminæ of the internal parts of the foot. And even if it does not produce a separation of the hoof from the coffin-bone, still it frequently occasions that alteration in the condition and structure of the hoof which is denominated—Founder. When the animal is affected in this way, the appearances are as follow; namely, he lies down continually, and shews great aversion to rise, and when he does rise he stands constantly shifting his fore-legs, as if in great pain, and with his body doubled up and his hind legs brought under him as far as possible, in order to take off the weight from the fore-legs; his fore-parts are extremely hot, particularly the lower extremities of his limbs; and the coronet is swelled in such a manner as almost to burst from the hoof. The inflammation is so great in some cases, especially in fat and pampered horses, as to occasion mortification, and on dissecting the feet and legs of horses that have died from this injury, the blood is generally found extravasated, the parts having a black appearance, especially between the skin and the flesh. The same blackness is also observed in the cellular membrane, between the interstices of the muscles and tendons; the texture of the vessels too is destroyed, and their substance mortified.

The following case, amongst many others, clearly shews the bad consequences of the application of sudden and violent cold to the feet.

A horse belonging a gentleman in the metropolis, was ridden, on a particular emergency, an eighteen mile stage in a very small space of time, through a deep snow, and during a hard frost. After being properly cleaned and fed, he was left for the night in the stable, when he laid down and was found in the same situation on the following morning, but scarcely able to rise or stand when on his legs. On the third day both his fore hoofs fell off. In this case it was evident that the excessive coldness of the snow to which his hoofs and legs had been so long exposed, when they were overheated, produced these effects, and the violence of the inflammation that had taken place within the hoof, had destroyed the texture of the vessels.* From this cause all connection between the hoof and internal parts of the foot being destroyed, they became loose and consequently fell off. Another remarkable circumstance of this nature happened to a horse in one of the mail-coaches in the depth of winter, when there was much ice and snow. This poor animal lost both his fore-hoofs, and actually travelled on to the end of the stage before it was discovered; the accident taking place during the night. It is a fact which cannot have escaped the observation of experienced sportsmen, that a horse, during the chace, is always perceptibly weaker and more fatigued after being ridden through deep water, which proves that the common idea of its refreshing and invigorating the animal, when overheated and exhausted, is a very erroneous one.

In regard to horses that are kept solely for the purposes of pleasure, the periods of their exercise may be so regulated as not to interfere with the usual course of feeding and cleaning. But this is not the case with post-horses, and several others which are obliged

* It is probable that much of the mischief above-mentioned arose from the snow balling in the shoe, and thereby producing a partial and unnatural pressure against the sole.

to go out at a moment's notice, and thus they are often exposed to the inconvenience of being forced to travel immediately after being fed and watered, and consequently with a full stomach. In this case they should be made to move gently at first, until the stomach has, in some measure, got rid of its contents. From not attending to this precaution, the foundation may be laid for broken-wind and other asthmatic complaints.

It is in all cases improper, where it can be avoided, to take out horses to exercise in wet or stormy weather. When the horse runs at grass, he naturally disregards cold and wet, but when he has been rendered delicate by the stable, the consequences are sometimes highly prejudicial to his health. But the greatest caution is necessary in regard to horses that are extremely fat. These require a long course of very moderate and regular exercise before they can with safety be put to that which is the least violent.

The want of attention to this circumstance sometimes occasions sudden death, or else produces a disease which is known by the name of *molten grease.*

Horses that have been fattened quickly for sale, are, of all others, the least calculated for hard labour, and these should never be brought into work without previously undergoing a regular course of purging medicine, and a good deal of walking exercise.

From the foregoing observations, it will be seen that the greatest advantages in regard to the health and strength of horses are derived from a proper attention to exercise. Still an excess of it, on the other hand, is attended with danger

The effects of violent and long continued exertion on animal bodies are, in some degree, remarkable. In quadrupeds that have been hard hunted before they were killed, the inside of the skin, and even the muscular parts, have been found almost black, from the blood having been extravasated and driven into the minuter capillary vessels, by the extreme force and velocity of the circulation. This is one reason why game that has been hunted is more tender than that which is killed in any other way. In cattle that are slaughtered immediately after travelling to the butchers, the same appearances are observed in the skin and flesh, and the meat under these circumstances will not keep so long, nor will it take the salt sufficiently to preserve it sweet.

When the small superficial vessels of the skin have been thus preternaturally distended with blood, they experience a subsequent degree of relaxation in proportion to the previous distension, and hence the skin feels loose and flabby, and this state of the vessels certainly predisposes the body to disease in a greater degree than when they are in that firm and elastic condition which is the criterion of health and vigour.

Next to the proper feeding of a horse, it becomes an object of great importance to ascertain whether he is in proper order to undergo labour, especially if he has to perform a long journey. And this investigation includes not only what is called condition, but the actual state of his legs and feet preparatory to his setting out. For every horse that goes a journey, (let him be in the highest condition or not) has many inconveniences and evils to encounter, such as bad roads, a successive change of stables, bad qualities of food and water, and, in addition to all this, generally very imperfect grooming.

When the owner of a horse, therefore, meditates a long journey, he should take care that the animal be prepared by good feeding and regular exercise, as these form the basis of that health and strength which are to enable him to go through it with ease to himself and comfort to his rider. Without sufficient preparatory exercise, the best horse that ever was bred will be found unequal to any great or continued exertion, and it frequently happens that, for want of this precaution, he knocks up on the very first day's travelling, and never recovers it thoroughly to the end of his journey

In the first place, it must be obvious that a horse just taken up from grass, or that is just out of the hands of a dealer, or one that is enormously fat from any other cause, cannot be in proper condition for hard labour, and, indeed, the rider will, in general, discover this truth before he has proceeded even five miles, by the blowing, sweating, and purging which, under these circumstances, invariably take place. It is obvious also, that the age of the horse should be taken into consideration, as the two extremes of youth and old age must be equally unfavourable, especially as there are many periods of weakness and debility in a very young horse, arising from the shedding of his teeth, and from other natural causes. On the whole, therefore, a horse may be said to be in the best condition for a journey when he is rather lean than fat, and when his flesh feels hard and firm, particularly his erest, or that part which lies just before the withers. His coat also should be sleek and shining, and his skin loose.

The next point to be attended to is, that the saddle and bridle be in proper order. In the first place, the stuffing should be examined that it be not hard in particular parts, from the accumulation of the perspirable matter, which has been absorbed by the wool, for if it be hard, or in lumps, it will almost to a certainty prove the cause of galling the horse's back; besides, if the stuffing be too thin it lets the tree of the saddle sink so low as to touch and fret the skin, and often produces warbles, or sitfasts, which are very troublesome to remove

Indeed, there are few evils so distressing as the being obliged to continue a journey with a horse whose back has been galled; for, notwithstanding all palliatives, it must inevitably become worse at every stage.

On the first symptom of the back being pinched by the saddle, let the part be bathed with cold water for half-an-hour, and then rubbed with some of the following embrocation, viz.

Spirits of wine . .	2 ounces
Extract of golard .	half-a-drachm
Vinegar . . .	half-a-pint

mixed.

The saddle should also be examined, and altered so as to remove any partial pressure from the part affected.

The next point of the greatest importance to be attended to in travelling, is the proper state of the feet and shoes. In regard to the latter, it is advisable to have the horse fresh shod three or four days before he begins his journey, by which time that sense of tightness and compression which the feet always experience upon being newly shod, owing to the clenching of the nails, will have gone off. In the forming of the shoe some attention should be paid to the nature of the roads

over which the horse will have to pass, allowing more breadth in the web for flinty or stony surfaces.

It will be proper also to weld in a piece of steel at the toe of the shoe, which will render it more durable. The foot should not be pared too thin, which would increase the risk of its being bruised, and it should be thoroughly cleaned out at night with a picker, so as to remove every particle of sand and gravel. It also tends to cool the feet, and prevents that degree of inflammation which generally arises from travelling, to stop them at night with wet clay or cow-dung. In regard to feeding on a journey, great attention is requisite as to the quantity to be given at once, as well as to the distance of time between each feed. A delicate horse generally shews but little inclination to eat during his day's work, especially if he is ridden too long a stage at once without baiting; and this disinclination to eat is often much increased by the bad quality or too great quantity of the food which is put before him. The best practice in this case is to ride him very gently for the last mile or two of the stage, that the circulation of the blood may sink to its natural state, and the animal become cool and tranquil by degrees. It is also a good practice to give him about a quart or two of water just before coming in. This cools and freshens his mouth, and removes the saliva, or froth, which is generally collected from the animal champing the bit, and the action of the jaws pressing on the parotid glands. When arrived at the inn his feet should be picked out and washed, and his legs and body thoroughly cleaned. He may then be fed with a small feed of oats mixed with a few beans. The beans will generally tempt the horse to eat, especially if he has not been accustomed to them at home.

There is an old adage that the master's eye makes the horse fat, and this, perhaps, is in no case more applicable than to the feeding a horse at an inn, where the animal is not only exposed to short measure, but even to be robbed of the small quantity which that measure allows him, by post-boys or helpers who are about the premises.

In several inns, also, the stables are a distinct concern from the house department, and belong solely to the head hostler, who, whatever may be his other qualifications, is seldom troubled with many scruples of conscience in regard to the means of filling his own pocket.

In the next place the traveller should ascertain that his horse has been thoroughly cleaned. The proper way to do this is to pass his hand under the brisket between the upper part of the fore legs, and also under the flanks. This is necessary, not only because the sweat collects and concretes more in those parts than in any other, but because ostlers are very apt to clean the back and sides, and to neglect the parts just-mentioned, especially if the horse be ticklish and troublesome to dress. It is a very essential point to the safety of the animal to examine the manner in which he is tied up in the stall. For want of a proper attention to this circumstance many a good horse has been materially injured, and in some cases killed. It is the custom, in many country stables, to tie up the horse with a hempen halter, which is so constructed as to open or draw close at the nose-band, by means of a running noose. This kind of halter is a very dangerous one, because, if it happens to slip backwards

round the throat, the horse may be strangled in the night without any chance of relief. The best mode, therefore, of tying the horse to the stall, is with a *leather* head collar, which, being fastened on with buckles and straps, is less likely to slip backwards or forwards, and cannot become either looser or tighter under any change of position whatever. It is necessary, in the next place, to observe that the collar rein be not too long, and that it have a weight attached to the end of it, sufficient to keep it in a straight line from the horse's head to the manger. For want of this precaution, the collar-rein may get under the horse's feet, and his legs become entangled in it, it may also get round the fetlock of the hind-leg if the horse happens to hold it forwards for the purpose of biting it.

It is a good practice, in cases where the legs are apt to swell after a hard day's work, to bandage them at night with a flannel roller dipped in water. This greatly assists the absorbent vessels in their natural action, and may be done without much trouble or difficulty.

Upon first setting out, the girths should not be drawn too tight, as the compression occasions great inconvenience to the animal, by obstructing the free expansion of his ribs, and thereby impeding his powers of breathing. Old horses get a trick of providing against this inconvenience, by holding their breath and swelling out their chests as much as possible whilst the girths are being drawn tight, so that afterwards, when the chest returns to its natural dimensions, the girths are quite slack and easy. Besides, in big-bellied horses, the tighter the girths are drawn, the more liable they are to slip forwards towards the breast. With young horses it is sometimes a very dangerous practice to girth them too tight, as it induces them to plunge, and which they sometimes do to such a violent degree, as to snap the girths asunder in a moment, and consequently to throw the rider and the saddle all together.

It sometimes happens that a horse, after hard riding, will break out into a sweat in the stable after he has been thoroughly cleaned and dried. This is principally owing to the heat of the stable, for the vessels of the skin having been greatly distended in the act of throwing out perspirable matter, do not again readily recover their tone and contractile power, hence the warmth of the stable brings on a fresh perspiration.

When this occurs, the horse may be stripped and rubbed, or led out into the cool air for a few minutes, that the vessels of the skin may contract. Horses, on a journey, suffer great inconvenience in stables at inns, from various causes, such as the narrowness of the stalls, the rising of the pavement, and the filthy state of the racks and mangers, which ostlers never think it worth while to clean.

Amongst these sources of inconvenience to the animal, none is more distressing to him than the narrowness of the stalls, especially when he is required to turn round in them at the risk of injuring his back, for the back-bone of a horse is naturally less flexible than that of any other quadruped. It also very frequently deters him from lying down, and if he does lie down, it prevents him from stretching out his legs; an action which affords great comfort when fatigued. The horse is likewise liable to be disturbed every moment by the opening of the stable-door, and by the ingress and egress of other

horses. These, however, are inconveniences which it is very difficult, if not impossible, to avoid, all that can be done, therefore, in these cases, is to seek for the best standings, and in as quiet situation as possible.

During a journey in the summer season, it is advisable to travel early in the morning and to bait for three or four hours in the middle of the day. This practice refreshes a horse more than frequent baitings at short stages by which much time is lost without any benefit to the animal.

At the close of the autumn, horses suffer a good deal from the bad provender with which they are supplied at inns, especially in regard to new oats. These, undoubtedly, have a bad effect, in producing a constant laxity in the bowels, and a general relaxation in the system at large, rendering the horse faint and prone to sweat on undergoing the least exercise And these bad effects are considerably aggravated by their occuring at the same period when the animal sheds his coat, a process which always naturally enfeebles him in a greater or less degree. To obviate this evil, as much as possible, it is adviseable to mix a few split beans with the oats, which will tend to correct their bad quality. Half a cordial ball given at night will also be found useful. Carrots are said to be beneficial to thick-winded horses; whether this be the fact or not, they may be considered as a pleasant and nutritious diet, especially to horses that are kept constantly on hard and dry food.

From the foregoing observations, it must be evident to every traveller who is about to commence a journey, that it is of the utmost importance to the completion of his object, that his horse should be in the best condition possible before he sets out, and even with this advantage he will find it quite difficult enough to support the same degree of health and vigour throughout, especially at those seasons when the horse is moulting, or shedding his coat.

This process takes place twice a year, spring and antumn. It is always attended by a certain degree of debility, but principally so in the autumn, when the system has been much exhausted by the heat of the summer. Hence the horse sweats profusely on the least exercise, and his coat becomes dry and husky when at rest, and his skin generally feels tight and immoveable. This unhealthy state of the skin is much increased if the weather be wet and damp, by which the insensible perspiration becomes suppressed, a circumstance which lays the foundation for many diseases. On this account the legs swell, the heels crack, and the animal very soon becomes unfit for any degree of labour whatever. These are evils which generally, more or less, attend the process of casting the coat in the autumn, and which it evidently requires the greatest care and attention to palliate. For the animal having lost much of his natural covering is more liable to catch cold, especially if he stands in a current of air when heated by labour, At this season of the year, therefore, it particularly behoves coach-masters, and others who keep a great number of horses, not to suffer them to be washed with cold water, or ridden into ponds, or rivers, as is the usual custom, and it is also of great importance that they be not overworked, for if they are once worked down at this season of the year they never recover it through the winter. It

is prudent, therefore, to keep a few extra horses to divide the labour more equally, or to supply the place immediately of any that happen to be taken ill; for rest is often as essential in the cure ot diseases as medicine.

Mr. Clark, of Edinburgh, speaks very rationally on this particular point. He says, "The end of autumn proves very severe to those horses whose flesh and strength are exhausted from continued hard labour, or violent exercise, such as posting, &c. through the summer and autumn ; when the moulting comes on in this low, spiritless state of body, it carries off great numbers of them, that by proper care in moderating their labour, together with good nursing and feeding, with rich boiled food, at this time might have been preserved.

Such soft nourishing food becomes the more necessary for horses of this description at this particular period, in order to support them under the moulting, as the serous, or watery part of the blood, having been drained off by the violent perspiration they were exposed to, their muscular fibres are then too rigid, and the blood too thick for circulating so freely as it ought to do through the fine capillary vessels ; hence they are disposed to fall into those disorders which proceed from this cause. Many of those horses that are thought to be worn out with posting, &c. at the end of the autumn, when they come to be fed with boiled food, or with potatoes and carrots, and continued so through the winter, recover surprisingly. This last-mentioned food recovers their flesh, it renews their fluids in general, and promotes all the natural secretions. It operates on them nearly in the same manner as the spring-grass ; it purges them gently on the first use of it, and corrects the whole habit. On changing their food to that which is hard and dry, as oats and beans, and increasing their exercise gradually towards the spring, they soon become fit for the most active exercise, without any previous preparation from medicine.

This season, likewise, proves destructive to aged horses ; when the green food is exhausted, they are then obliged to feed on hard dry food ; in some the digestive powers may not only be weaker, but the teeth, at the same time, may be defective in not breaking down the hard food so minutely as it ought to be, in order to render it fit for digestion and the nourishment of the body.

As the disorders which commonly prevail at this time amongst horses, proceed, in a great measure from catching cold, together with the sickliness attendant on the moulting, horses are differently affected according to circumstances of habit of body, and the treatment they are exposed to. Some are affected with colds in the head, attended with swelling and inflammation of the glands about the throat and jaws, which too frequently, from want of proper care, terminate in the glanders; hence this disorder is frequent at this season.

Some horses are affected with coughs, and other disorders of the lungs. Rheumatism is likewise common in different parts of the body, particularly in the neck, which is called the chords. Epidemical diseases frequently originate at this period, and continue with greater or less violence through the winter, and sometimes till towards the spring.

Fever is likewise common, together with a variety of other complaints which it would be tedious to mention. All these disorders are forwarded from the above circumstance, together with horses breathing a heated foul air in their stables, and their bodies exposed suddenly to the chillness of the weather, before their coats have grown sufficiently thick to resist the cold, &c.; for it is observed in those horses that run abroad in the fields day and night, that they moult much sooner in the autumn, by which means they are sufficiently guarded against the severity of the weather when it becomes cold and damp, neither is it observed that they are so liable to be affected with those epidemical diseases which prevail amongst horses that are kept in too warm stables. This sickly disposition amongst them continues with more or less violence till such time as the weather turns more favourable and dry, or that the frost sets in.

It commonly commences, if the weather is moist, cold, and damp, about the middle of October, and continues till towards the middle of December, after which, if it is favourable, horses generally turn more lively and vigorous, and acquire their usual spirit and healthy appearance. As horses, therefore, are generally more weakly at the time of casting their coat towards the end of autumn than at any other season, their labour, when circumstances will admit, should be moderate. Their feeding should be increased in order to strengthen and support them during this period. It ought, likewise, to be of the very best quality, as old hay and old grain, that is, of the preceding year's growth, and if the grain that is given them be broken down in a mill, it would prove more nourishing than in any other way it could be given.

New hay, or new grain, of the same year's produce, ought to be avoided, as it is extremely hurtful to horses that undergo severe labour, or active exercises, of which we have formerly taken notice. Good rubbing and frequent dressing are likewise of great benefit.

All evacuations, such as bleeding, purging, rowels, &c. ought to be administered with caution, as such prescriptions contribute greatly to increase that natural weakness formerly mentioned, which prevails in the constitution of horses at this period. At the same time it is to be understood, that horses are not by any means to stand too much at rest in the stable. Fresh air, with moderate exercise, when the weather will permit, being absolutely necessary to promote their health; neither is the proper use of the above prescriptions to be neglected when they are thought necessary, and prescribed with judgment. All the precautions formerly mentioned, with respect to their stables, ought to be attended to, that they are kept clean, well ventilated, and yet moderately warm. Body-cloaths, however necessary they may be thought for keeping their coats fine and clean in the stable, are certainly injurious to health, as they keep the body in a constant state of relaxation, besides rendering the horse more liable to catch cold, especially as he is always stripped when he goes out of the stable to his labour.

Would it not appear ridiculous and inconsistent for a man to wear a great-coat in a warm-room, and to throw it off when he went out in the fresh air. Yet equally absurd is the practice just alluded to of cloathing horses in the stable. One would imagine

that the health of a horse was an object of the first consideration, and certainly of more importance than the fineness of his coat. But, in almost all stables, the latter is considered as of the most consequence, and the health of the animal is sacrificed accordingly to this trifling object. The process of moulting, or casting the coat, is much less injurious in spring than in the autumn, although it is unavoidably attended with some degree of inconvenience, on account of the natural uncertainty of our climate; for it sometimes occurs that an unusual mildness and warmth of weather, in the months of February and March, brings on a premature shedding of the coat (especially with those horses that are kept in hot stables, and are warmly cloathed) which, being succeeded by cold easterly winds, exposes the horse to great danger in regard to catching cold, especially those which are obliged to stand in gentlemen's carriages in the streets of London during the greater part of the night.

On this account coach-horses particularly require to be kept as cool in the stable as possible, that they may experience the less change when obliged to stand out in the open air.

It is this premature shedding of the coat just alluded to, that is one cause of those violent attacks on the lungs which are generally distinguished by the name of the "distemper," and it is worthy of observation, that this disease is principally confined to horses kept in the stable, as it very rarely exists amongst horses that run at grass.

From what has been said, it appears that the three radical points upon which good condition is founded, consist in cleaning, food, and exercise. In regard to cleaning and exercise, both of those are, at all times, under the control of every owner of a horse. But the article of feeding being greatly dependant on the peculiar constitution of the animal, is not so easily managed, for the appetite not only naturally varies in different subjects, but may be considerably affected by diseases which affect the general system, or by diseases of the stomach only.

In fevers, and all inflammatory diseases, horses generally refuse all manner of food. This is entirely an involuntary act, for the stomach being deranged in its functions, and unable to perform the process of digestion, the appetite naturally ceases, until the cause is removed. The same will happen in extreme pain, whether inward or outward, the reason of which is to be accounted for, from the mechanism of the stomach, and its sympathy with all the other parts of the body.

The want of appetite, however, may arise without the existence of any actual disease, and may proceed simply from the animal having been glutted with food, and kept in a pampered state without sufficient exercise. Some horses are naturally nice and dainty, but will eat tolerably when their hay is picked, and free from dust, especially when it has been well got. There are others that will eat tolerably well when they stand much in the stable, and do but little work, but lose their appetite when put to hard labour, and do not recover it for several days, although in a state of rest. There is, however, some difference in the quantity of food necessary to support different horses, for there are some that are small feeders, and yet go through a great deal of fatigue and work, without much diminution of their flesh, or any great alteration in their appetite, neither

are they more choice than others in what they eat. Such horses, therefore, ought not to be reckoned bad or poor feeders, but rather little eaters, and any attempt to make them eat more would, perhaps, do them more harm than good. But when a horse eats poorly and does not gather much flesh, when his dung is constantly soft, and of a pale colour, it is an evident sign of a relaxed constitution, in which the weakness of the stomach and intestines have a great share. This habitual weakness may either be natural or hereditary, or may be caused by some previous ill-management, such as too much scalded bran, or too much hot food of any kind, which relaxes the tone of the stomach, and, in the end, produces a weak digestion, and, consequently, a loss of appetite. Horses of this description are of little use until they are full aged, yet after that period turn out to be serviceable horses, and capable of a good deal of labour. The best method to season horses of this description, is to give them gentle exercise only in the open air and in dry weather, never to load their stomachs, but to keep them to a dry diet, mixing now and then a handful of beans amongst their oats. But if the horse still grows weak, and requires the help of medicine, a laxative purge or two, mixed with cordials, should be given to cleanse and strengthen the bowels. The following ball will be found useful for this purpose: viz.

Soccotrine aloes .	half-an-ounce
Rhubarb	two drachms
Ginger	one drachm

Make it into a stiff paste, with a sufficient quantity of treacle.

This purge will operate gently, and will strengthen the digestion. It may be repeated once in ten days, increasing the quantity of aloes, if found necessary, and on the second day after, the following cordial-ball may be given, viz.

Cummin seeds
Aniseseeds
Carraway seeds, of each four ounces,
Ginger, two ounces,

Mix the whole thoroughly, and divide it into balls of two ounces each.

Whilst these means are resorted to, continue to give constant exercise in the open air, and this will be the likeliest method to strengthen such horses as are of a weak and relaxed constitution, and deficient in appetite.

But where the want of appetite arises from too much feeding, especially on soft scalded diet, which is often the case with young horses, especially those that are just out of the hands of a dealer, the best way is to bleed and purge them moderately, for although the feeding on scalded bran makes them grow suddenly fat, yet it always causes weakness and relaxation in the stomach and bowels, the slimy secretions of which often form a nidus, or nursery for worms, all of which may be easily remedied by purging in the first place, and, afterwards, by proper exercise and a clean diet. Those horses that are of a hot fiery disposition, and lose their appetites in consequence of their heat and fretting, cannot easily be assisted by medicine. The only method is to keep them to a cool diet when young, and to let them run abroad in mild weather, especially where there are open sheds and other accommodations of that description, to guard them from the in-

clemency of the weather; for these sort of horses are generally tender and thin skinned. For the same reason, the best way in the summer, is to bring them up in the day time, and only to let them run abroad at night, as they suffer more when teized by the flies, which keeps them continually on the fret, and prevents them from thriving. When such horses arrive at a full age, their heat of temper often abates, so that they grow more useful; but while they are young they are more subject to disease than horses of a cooler temperament, and they often die suddenly, or become consumptive.

On the other hand, there are horses that have such an unnatural craving for food, that they appear never to be satisfied. Some of these are very properly termed—foul feeders, and will forsake their hay to devour their litter, and even that part of it which has been soiled by their dung and urine. It is not easy to ascertain the true cause of this depraved appetite. It has been ascribed, by some writers, to irritation of the stomach, arising from worms lodging there or in the intestines. It is probable that there sometimes exists an acidity in the stomach, especially as many of these foul feeders will eat mould and mortar from the walls.

Presuming that the vitiated appetite may arise from these causes, the best mode of treatment will be to purge them moderately and to give them lime-water to drink. Should, however, these remedies fail of having the desired effect, the best plan will be to turn the animal to grass, as a change of diet will, in some cases, be more efficacious than medicine. Should the horse remain in the stable, it will be advisable to clear out his stall from litter during the day time, or else to put him on the muzzle between his regular meals, so as to prevent him from eating the straw, or dung.

The way that a horse first learns to eat his litter, is from selecting the heads of the fresh wheat-straw that is spread in the stall, many of which frequently contain several grains of corn, owing to their having been thrashed in a negligent manner, an evil which appears to prevail more in the neighbourhood of London than in the more distant counties. The next most important article in the dieting of horses, is the quality of the water which they have to drink; for, although the properties of water are simple, and are pretty generally understood, yet for want of common attention, a proper distinction is not always made between that which is wholesome and that which is otherwise. It is generally distinguished under two heads, viz. hard and soft.

Hard-water is known by soap curdling when dissolved in it, and it almost always contains earthy or saline, and sometimes metallic matters in solution. On the contrary, soft water is known by soap dissolving easily and perfectly in it, and also by its boiling vegetables well, and extracting more thoroughly the aromatic principles of tea and other plants.

Mineral or medicinal waters are such as differ so much in their temperature from common water, or hold minerals in solution in such quantity as to produce some sensible effects on the animal œconomy Silicious earth is suspended in them in extremely small quantity, but aluminous earth in such quantity as sometimes to give water a pearly colour and a greasy feel. Hence those waters have been called saponaceous. Barytes, magnesia, lime, and fixed alkalies, are never

found pure in water, but often combined with acids. The same occurs with ammoniac, and most of the acids, yet carbonic acid is often found in waters pure. These waters are called gazeous, spirituous, or acidulated. Neutral salts are seldom found, except sulphate of soda, muriate of soda, muriate of pot-ash, and carbonate of soda.

Of earthy salts, sulphate of lime, calcareous muriate, chalk, sulphate of magnesia, muriate of magnesia, and carbonate of magnesia, are most common. Alum is sometimes found pure, sulphur has not been found, but small quantities of sulphate of soda have. Sulphurated hydrogenous gas, commonly mineralises sulphureous waters. Iron is more frequently found in mineral waters than any other metal, combined with carbonic or sulphuric acids. Arsenic, sulphate of copper, and of zinc, are found in many waters, rendering them very noxious. It appears, therefore, from the foregoing analytical statement, that water may hold a great variety of noxious ingredients in solution, and it is very probable that some of the diseases to which horses are subject, arise from their being obliged to drink constantly water of a pernicious quality.

The following observations of an old author, on this subject, are so much to the purpose, as to need little more to be said on the occasion. "Water," he observes, "is the main diluter of the food and fluids in general. It likewise becomes the vehicle of all nourishment to the animal. On that account we cannot be too particular about its qualities, nor delicate in our choice of it for our horses, as it partakes of the qualities of those bodies through which it passes.

Whether they are metallic, saline, or earthy, these foreign matters mix with the animal fluids, according to their different gravity and the capacity of the canals through which they circulate, and will, by the laws of motion, be deposited on one part or another.

As the proportion of water which enters into the composition of animal fluids is considerable, so likewise is the proportion of fluids secreted.

A large quantity of water diffused through the whole mass of fluids in the body, adds to its fluidity. Hence it will be obvious, that constant and frequent supplies of water are not only necessary to dilute the food in the stomach, but the mass of fluids in general, as they have, even in the most healthy state, a constant tendency to putrefaction, and require a continual supply of food and drink to keep them in a healthy condition. Those who have searched into the causes of disease in the human body, alledge that some of the most obstinate of the chronic kind, proceed in a great measure from the use of unwholesome water, and, by comparing the different strata of earth through which water passes in the vicinity of populous cities, they affirm, that where the water is bad those diseases prevail most. It is likewise thought, that the disposition to gravel in the urine may be owing to the same cause. In like manner, water which contains mineral bodies, and metallic salts, is thought to enlarge the glands of the throat and jaws, and hence it is said, that the inhabitants about the Alps, where the waters abound much with these qualities, are much disposed to glandular obstructions and other serious maladies. In some counties in England, particularly Worcestershire and Derbyshire, the same tendency to swelled-throat prevails, and it is

generally attributed to some particular property in the water. These swellings have been long known by the appellation of Derbyshire-necks. These circumstances seem to warrant the conclusion that those waters are not digestible, or that they do not assimilate or mix thoroughly with the fluids, and hence prove the source of calculous concretions, and of hard swellings in different parts of the body.

The effects of unwholesome water upon the human body being thus evident, if the diseases of animals, particularly those of horses, were as thoroughly investigated, it is more than probable that they would be found equally hurtful to brute animals, for it is certain they are subject to diseases which, in many respects, resemble those of the human body. We likewise, find on dissecting their bodies, that they are subject to calculous concretions and hard tumours in different organs, which may originate from the source we suspect.

But the greatest injury probably arises from their drinking such waters as, by running through various strata of earth, are impregnated with stony particles. In short, whatever can bring on an accumulation of earthy, or rather tartareous matter, in the urinary passages, whether by obstructing or lessening the capacity of the canals, or by immediately or remotely producing the substance itself, will cause gravel, and, in time, the stone.

It has frequently been observed, and not easily accounted for, that horses do not thrive on changing from one part of the country to another, although their treatment, in every respect, be the same, difference of water excepted. This, perhaps, may, in a great measure, be owing to the quality of the water they drink, and which may be possessed of different qualities from that to which they had before been accustomed.

This is particularly observed in those places where the stable-yards are supplied from pit-wells, some of which are very deep, and the water very hard, which occasions that chillness, trembling, and shaking which is frequently observed in horses, when they drink it immediately after it is new pumped, and which causes their coats to stare and stand on end for a considerable time, and sometimes they are griped and seem considerably out of order. Spring-water is liable to partake of all the metalline or mineral strata through which it passes. Hence it becomes noxious or salutary according to the nature of those substances with which it has been in contact. River-water has, likewise, its different qualities, from the various soils through which it travels; but, in general, it is much softer than water that runs under ground, and therefore is much fitter for use. Well, or pit-water, is subject to all the inconveniences of spring-water, with this additional circumstance, that it is generally hard, and, by stagnating long in the well, it may there take up from the bed it lies upon such particles as may render it unwholesome; therefore, the goodness of all well, or pit-water, is to be doubted, and particularly that which is taken from very deep wells. Pond-water (under which head may be included all stagnant waters which generally proceed from rain) if lying on a clean or clayey bottom, and fresh, answers very well for cattle of all kinds; but in warm weather, it is apt to corrupt and ferment, which renders it unwholesome, and the most uncleanly and disagreeable of any.

To correct the hardness of pit-water, and render it more salutary for horses to drink, it should be pumped into a large trough, and exposed to the open air for some time before it is used, or if a cart-load or two of clay or chalk were thrown into the well, it would greatly improve the water. It has likewise been found, that breaking down a piece of clay, about the size of an apple, in a pailful of hard-water before it is given to a horse to drink, morning and evening, has produced a considerable and favourable change on the coats of horses.

Indeed, it will be found where horses are obliged to drink hard water, they are, for the most part, rough haired, and at the same time have a great deal of dusty matter at the roots of their coat, even though they are well curried and brushed every day, which plainly shows that there is some obstruction in the pores of the skin, which prevents the natural perspiration, and of course that shining appearance of the hair which is observable in all horses that perspire freely. Hence it would appear that this cutaneous obstruction proceeds from the constant drinking of water of a bad quality.

Water that runs through lime-stone, although exposed to the open air in large ponds, will retain its hardness, and produce all the effects above-mentioned on horses that drink it constantly.

This was observed in the neighbourhood of Dudley, in Worcestershire, and was corrected by throwing a few cart-loads of clay into the pond, which produced a considerable change for the better. When pit-water is rendered impure, from stagnating too long, without being drawn off by pumping, or when it has acquired any bad smell, by filth getting into it, or full of animalculæ, or small earth-worms, throwing into the well a few shovels full of burnt lime will render it sweet and fit for use.

Horses have a delicate taste and smell, and are very nice in the choice both of what they eat and what they drink; of course they shun, when it is in their power, every thing that is disagreeable to them in that respect. But when they are long restricted from drinking water, they will, in that case, disregard its offensiveness, for the sake of quenching their thirst. This is evident from their drinking water strongly impregnated with nitre, or with quick-lime, in certain cases where these are given as medicine. But this restriction from water ought never to be laid on horses, more especially when they are labouring under any inflammatory diseases, as, in such cases, they cannot drink too much, in order to dilute their blood and promote the natural secretions.

But it too frequently happens, through mismanagement, that they are forced, from necessity, to drink water which they loath, and that, of course, very sparingly, when at the same time, if it were of a proper quality, and given in a proper manner, it might prove, in many cases, the best medicine they could have.

Horses should never be suffered to drink too much cold water at one time. If they are disposed to this, it shews that they have been neglected in this respect, for if they had always water at command, they would drink often, but never too much at once. For this reason, water should be offered them frequently, but not in too great a quantity. Neither should they be allowed to drink much when they are going to perform any

active exercise. It is, however, very refreshing to horses to allow them to wash their mouths and throats by a few swallows of water, after performing any severe exercise, but they ought, on no account, to be indulged in drinking a quantity of cold water when they are heated. This should be particularly guarded against, as the consequences are dangerous, and frequently prove fatal to them, for when a quantity of cold water is taken into the stomach while in this heated state, when its vessels are full and distended with blood, a stagnation of the blood in these vessels takes place, a mortification follows, and death is the consequence; therefore, when a horse has been overheated from exercise, small quantities of water should be given him at a time, but not until he appears to be thoroughly cool. In very cold weather the chill may be taken off by mixing hot-water with it, but the best method of taking off the extreme coldness, is by letting it stand in the pail in the stable for an hour or two before the horse drinks it.

DISEASES OF THE SKIN.

Horses that are full of flesh, especially those that are just taken up from grass, are very subject to throw out numerous small swellings on the surface of the body, very much resembling the effect of being stung by some venomous insect. This is generally known by the name of *surfeit*. These eruptions very often appear in the space of a few minutes, and disappear again as suddenly, and it is commonly supposed that their sudden disappearance is attended with some danger to the health of the animal.

Various causes have been attributed for this disease, such as excessive and immoderate feeding, especially upon unwholesome food, also hard riding; but the most general and probable cause is a suppression of the insensible perspiration, in which case the vessels of the skin, being unable to discharge their contents, swell up suddenly, and constitute those knots and lumps which are seen upon that occasion. If, however, these swellings do not soon subside, the skin becomes permanently diseased, and the coat stares and looks dry and dirty in spite of all efforts in regard to cleaning with the comb and brush. A kind of scaly scurf pervades the whole of the coat, and is constantly supplied with a fresh succession of the same, until the disease is removed. The surfeit, however, has a different appearance in different subjects. In some it is manifested by dry fixed scabs all over their limbs and bodies, in others by a moisture attended by heat and inflammation, the humours being so sharp, and itching so violently, that the animals sometimes rub themselves raw. Others have no eruption whatever, and appear only lean and hidebound.

The first eruption of the lumps on the skin may generally be removed by bleeding and diuretics, but if the horse be very fat, a

purge is the best remedy. Indeed, in all the various cases of surfeit, it will be adviseable to begin by opening the bowels, and after the action of the purgative is concluded, the following ball may be given every night, for three or four nights successively, viz.

Emetic tartar . . .	4 drachms
Assafœtida	4 drachms
Ginger	2 ounces,

to be mixed and divided into four equal balls, one to be given every night. Food, scalded oats, or bran-mashes. The horse to have daily exercise, and to be kept warmly cloathed.

In case the scabs do not come away of their own accord, it will be beneficial to rub them with mercurial ointment, and indeed the introduction of mercury into the habit, by friction, is attended with advantage in all cases where the absorbent vessels are become diseased.

In that species of surfeit which is attended with a moist discharge from the skin, the parts affected may be bathed with the following lotion, viz

Blue vitriol	1 ounce
Camphorated spirits of wine	2 ounces,

In a quart bottle, and to be filled up with water.

Some of this lotion may be applied once every day, after first washing the part with soft-soap and warm water. During the application of this lotion, the horse should have one of the emetic tartar balls, before prescribed, every night, and exercise in moderation.

The diet should be cool and opening, such as scalded bran or barley, and if the horse is low in flesh, an ounce of fenugreek-seeds may be mixed with his corn, and continued for a fortnight, or longer, if necessary.

At the termination of a surfeit, it sometimes happens that the hair falls off from those parts of the skin where the lumps, or swellings, were situated, and grows again of a different colour to the rest of the body, giving the animal a kind of spotted appearance.

The next disease of the skin that requires to be treated of, is the *Mange*. This disease, perhaps, owes its origin chiefly to want of cleanliness, joined to bad food, and defective perspiration. It shews itself by an eruption on the skin, and the loss of the hair, so that the skin, in parts, becomes quite bald. The eruptions discharge a thick yellowish fluid, which, when dry, forms a scurf which peels off, and is succeeded by fresh eruptions.

This state of the disease goes on until the whole surface of the body, including the mane and tail, becomes entirely deprived of hair. The horse suffers a perpetual itching, and most of his time is employed in rubbing, or biting himself, so as to disturb him in taking his food, and to cause his losing his flesh for want of rest and quiet.

This disease is contagious, and may be communicated from one horse to another, by coming into contact, or by using the same cloathing, or the same curry-combs and brushes, or even the saddles, bridles, or harness, which have been worn by a mangy horse. Prescriptions for this complaint are very numerous, and there is scarcely a village-blacksmith in the country that has not a sovereign remedy which he considers as

superior to all others. Amongst the different veterinary writers that have treated upon this disorder, the following prescriptions are selected as the most rational, and may generally be used with safety, viz

Prepared hogs' lard . . 1 pound
Sulphur . . . . . half-a-pound
White hellebore, in powder, 3 ounces
Mix and add olive-oil sufficient to make a soft ointment.

A moderate quantity of this ointment may be rubbed well with the hand all over the affected parts, or where there is the least appearance of any eruptions ; and this should be repeated after an interval of three days.

Two or three applications of this ointment are generally sufficient to complete the cure.

The following medicine, given internally, will be found useful during the application of the ointment, viz.

Take of antimony, in fine powder, eight ounces
Grains of paradise, in fine powder, three ounces
Mix and add Venice turpentine sufficient to form the mass of a proper consistence, and divide it into twelve balls. One of them to be given every other day.

Some practitioners advise bleeding, but for this there can never be any necessity whatever. The following ball has been recommended, viz.

Take of nitre, in powder
Resin, in powder
Castile soap, of each . . half-an-ounce
Camphor, in powder . . 1 drachm
Honey enough to make a ball.

During the use of this medicine particular attention should be paid to diet, exercise, and grooming. The food ought to be of the best quality, and given in liberal quantities.

The bowels should be kept open with mashes. A small rowel may likewise be placed in the chest. The affected part should be well washed with a strong solution of soft-soap, and afterwards rubbed, morning and evening, with the following ointment, for a week.

Take of flowers of sulphur 4 ounces
Hogs' lard . . . . . 3 ounces
Mercurial ointment . . . 2 ounces
Mix for use.

This ointment may be continued every other day, until the disease gives way, or is entirely removed. Two or three doses of mild physic are afterwards recommended, and next the following ball, every other night for a month.

Take of Ethiop's mineral
Crude antimony, in powder,
Cream of tartar, of each half-an-ounce
Honey enough to make a ball

When the disease is removed, the horse should be turned to grass, if the season of the year will admit, and a salt marsh should be preferred. In a slight case of the mange, an infusion of tobacco in ale grounds will sometimes prove sufficient to effect a cure. The following ointment is also recommended in an inveterate case.

Take mercurial ointment half-a-pound
Brimstone, finely powdered 4 ounces
Black soap . . . . . 2 ounces
Crude sal ammoniac, an ounce and a half
Oil of bays, or turpentine, enough to make it a proper consistence for an ointment.

Or,

Take tar
Gunpowder, finely powdered,
Black soap
Oil of turpentine, of each equal quantities.
Mix into an ointment.

The following is also proposed as an active remedy in old and inveterate cases of the mange.

Take of burnt alum
Borax, in fine powder,
Of each two ounces,
White vitriol
Verdigrease, powdered,
Of each four ounces,

Put them in a pot over the fire, with two pounds of honey, or of lard and honey equal parts. Stir them together till they are well mixed, and when cold add of oil of vitriol two ounces.

This last recipe is of a very powerful nature, and should be used only in extreme cases.

If a lotion be thought preferable to an ointment, the following may be used with advantage.

Take corrosive sublimate,
in powder, ... half-an-ounce
Spirits of wine . . . . half-a-pint
Water . . . . . 1 quart.

Or,

Take corrosive sublimate
Crude sal ammoniac
Of each three drachms,
Boiling water . . . 3 half-pints,
Mix for use.

The skin may be dressed with a sufficient quantity of either of the above lotions, once in three days, using in the intermediate days soft-soap and warm water.

It will be necessary in every case of the mange to wash the harness and gearing well with soap and water, and to apply some of the lotion before recommended.

The stall, rack, and manger should also be whitewashed with quick lime, which may be suffered to become dry and to remain four or five days and then to be washed off with clear water.

THE FARCY.

Although this disease affects the whole system at large, yet its existence is demonstrated principally on the surface of the skin, in the form of small tumours, which the common Farriers denominate farcy-buds.

It is a disease of a very malignant nature, and frequently very difficult to be cured It has been supposed to bear a close affinity to the glanders, and indeed it is no uncommon circumstance for both diseases to exist in the same animal at the same time. There is this difference, however, namely, that the glanders is very often merely a local disease confined to the head, whilst the Farcy is always grafted in the whole habit of body. The Farcy has generally been described by the old writers, and is also considered by the common Farriers, as a disease affecting the veins, particularly those situated on the inside of the thighs, and the upper part of the forelegs. This, however, is a very erroneous idea, and arises from a total ignorance of the anatomy of the animal. The Farcy is, in fact, a disease of the absorbent vessels, or

lymphatics, and these generally take nearly the same course as the veins. Hence the common Farriers, for want of better judgment, mistake these vessels for the veins, and conclude accordingly that the latter is the seat of the disease.

These absorbent, or lymphatic vessels, may be divided into two sets, the deep-seated and the superficial. The latter are very numerous, and more particularly so in the inside of the legs. At certain distances these vessels are provided with small glands, which are not very perceptible during a state of health, but become enlarged when diseased.

The principal cause of the Farcy is supposed to be debility, brought on by a want of proper exercise, or by over-feeding, especially upon food of a bad quality. But it more probably arises from a defective action in the insensible perspiration, and also from hot and crowded stables, for it is a disease which is known to prevail more amongst waggon and post-horses than any others.

Horses of this description are, in the course of their labour, exposed to much injury from weather, not only from their being obliged to travel at all times and seasons, but also from the wilful negligence of those to whose care they are entrusted. Hence, whilst their bodies are in a state of violent perspiration, they are ridden into brooks and ponds, to wash them, or else they have to stand for an hour at an ale-house door, whilst the driver is taking good care of *himself* within.*

In these cases if the animal has the good luck to escape a violent inflammatory attack on any of the viscera, he is still liable to the consequences of suppressed perspiration, and the Farcy is as likely to follow as any other disease.

At the first attack of the disease, the animal appears dull, his skin feels tight and dry, and there is generally some degree of swelling in the legs, particularly the hind-legs. This swelling often comes on in the course of a night and increases to an enormous size, especially on the inside of the thigh. The lymphatic vessels (erroneously supposed to be the veins) arise above the surface and feel hard to the touch, and are extremely sore when handled. At irregular distances in the course of these vessels, are small lumps, or knots, which are called farcy-buds; these are the small glands which become inflamed, and in a few hours suppurate and throw out an ichorous, unhealthy discharge. The edges of these ulcers have a chancrous appearance, and are not to be healed by the common process of digestives, &c. as nothing but strong caustics, such as butter of antimony, and even the hot iron will be capable of destroying their diseased surface and action. As the disease advances the whole body becomes infected, and partial swellings take place in various parts, especially about the lips and nose, which last very frequently terminate in glanders.

In recent cases of the Farcy, where the horse is full of flesh, or in high condition, it will, in general, be possible to remove the disease, without having recourse to violent remedies, if the proper means be speedily adopted. But as it is a disease which spreads rapidly, and very soon infects the whole system, it is evident that the proprietor of the animal will best consult his own interest by

* In proof of this fact, returned post-chaises, from the western road, may be seen every day standing in Piccadilly, in the most inclement weather, with the horses in a sweat, waiting to catch passengers.

applying for good medical advice as soon as possible. If the attack be confined to a single limb, and great swelling and inflammation have taken place, it will be proper to begin by taking about three or four quarts of blood. After which, the following purge may be given, viz.

Aloes, Barbadoes . .	9 drachms
Castile soap	1 drachm

Liquorice powder sufficient to make a ball of a moderate size.

The above may be given with the usual process of bran-marshes, and water with the chill taken off, to drink. The horse should be turned into a loose box, where he may have room to move about, but he should not be exercised out of doors whilst the limb is much inflamed, as the exercise would tend only to increase the inflammation.

The swelled part should be fomented with a warm decoction of camomile flowers, and a rowel may be introduced at the lower part of the chest.

When the disease has made a more extensive progress into the system, it will be necessary to have recourse to a regular administration of such medicines as are known to increase the action of the absorbent vessels.

In this case, therefore, the horse having been properly purged, and his intestines thoroughly cleared, the following ball may be given every night, viz.

Camphor	1 drachm
Emetic tartar	1 drachm
Assafœtida	1 drachm
Ginger	2 drachms

in one ball.

The horse to be fed with mashes of bran and oats, and to have walking exercise at least for an hour every day, provided the weather be fair. The above ball may be continued for three nights successively, and (missing one night) may be repeated in the same way until the disease be removed. But in case this course should not have the desired effect, stronger preparations must be resorted to, especially those of mercury. When the constitution of the animal has become diseased by the absorption of the virus produced from the ulcers, the buds will be more numerous, the absorbent vessels will become hard and distended, and painful swellings will probably attack the extremities, and the whole frame will soon wear a haggard and distressing appearance. At this period of the disease, the following ball may be given every night, gradually increasing the dose of the sublimate to two scruples, if found necessary, from the smaller quantity not taking effect. But particular care should be taken that the horse be not exposed to wet or cold; his cloathing should be warm, and the chill should be taken off his water, and his exercise regular and gentle, and in a mild temperature.

Should any soreness or swelling arise about the mouth or throat from the use of these balls, some gentle laxatives may be given, such as eight ounces of Epsom salts, or two drachms of sulphur made into a ball, with liquorice powder, and treacle.—These medicines will stop the progress of salivation, which will not be so advantageous in promoting a cure, as the more gradual and moderate introduction of mercury into the system. The following is the composition of the mercurial ball, viz.

Corrosive sublimate . . 1 scruple
Emetic tartar . . . . . 1 drachm
Opium . . . . . 10 grains
Liquorice powder sufficient to make a ball of the usual size.

During the administration of these balls, the horse should have nourishing diet, such as malt-mashes, carrots, or brown sugar mixed with his corn, to the quantity of a pound daily.

In cases where the horse is full of flesh, rowels will sometimes be found useful; but although they serve as an outlet to the disease, yet they are not sufficient to remove it without the assistance of active and powerful medicines, such as have been just prescribed.

It sometimes occurs, that the Farcy attacks the lungs, producing a kind of chronic inflammation, which ends in the formation of tubercles.

From this state of disease the animal very rarely recovers, as the usual process adopted in the common inflammation of the lungs would, in this instance, be highly prejudicial, as the habit would sink under any copious bleeding, whilst, at the same time, it is difficult to prevent suppuration without having recourse to an evacuation of that kind. All that can be done is, to give the same medicine as for the general disease, as no other treatment can avail until the original virus is either subdued or totally expelled from the system.

There is another disease which is called by the common farriers, the "Water Farcy." This, however, appears to be simply an anasarcous or dropsical swelling of the cellular membrane, and which may arise from debility only, without any connection with the Farcy whatever.

Active purges, dieuretics, and cordials, given alternately, are the best remedies for this disease.

In all cases of the Farcy it will be prudent to separate the diseased animal from those that are in health; and when perfectly recovered, and the season of the year will admit of it, a run at grass will be advisable.

FEVER.

Fever in quadrupeds, especially in the horse, is mostly of the simple kind. The veterinary practitioner, therefore, (provided he be called in on the first attack,) has much fewer difficulties to combat than the practitioner in human medicine; but it seldom happens that the veterinary surgeon is applied to until the groom, or some other unqualified person, has commenced operations, which consist almost invariably in taking a small quantity of blood, and giving, at the same time, a cordial ball or drink; thus, as it were, cooling with the one hand and heating with the other.

Fever is manifested by the horse seeming dull and inanimate, and hanging his head with his eyes half-closed, and sometimes accompanied with a watery discharge from them in a greater or less degree. The circulation of the blood is increased, and, with it, the general heat of the body; the mouth feels hot and dry, and the saliva tough and ropy. Taking a comparative view of this disease in the human subject, a very able physician has given the following clear and satisfactory definition. "Simple fevers," he says, "are of two kinds; first, the febris irritativa, or

fever with strong pulse, which consists of a previous torpor of the heart, arteries, and capillaries, and a succeeding orgasm of the capillaries, the torpor of the heart and arteries continuing. But as the frequency of the pulse occurs both in the state of torpor, and in that of orgasm of the heart and arteries, this constitutes a criterion to distinguish fever from other diseases, which are owing to a torpor of some parts of the system, as paresis or hemicrania. In compound fever, when other parts of the system sympathise with this torpor and orgasm of the cutaneous capillaries, and of the heart and arteries, the fever fit becomes more complicated and dangerous, and this in proportion to the number and importance of the affected parts."

The best criterion of fever in the horse is the pulse. The best situation for feeling it is just under the edge of the jaw-bone, where the facial artery passes on to the side of the face. In this situation, the artery is covered by the skin only; and, as it rests against the bone, its strength or weakness of pulsation may be ascertained with the nicest exactness and accuracy. When the animal is in health, the pulse generally beats from thirty-six to forty strokes in a minute. The pulsation is regular, and the artery feels neither hard nor soft, but perfectly elastic; but when under the influence of fever, the pulse is sometimes increased to more than double its natural number of beats, and the artery becomes frequently so hard and rigid as to resist the pressure of the finger, and to slip aside from under it

Fever, although simple in its nature, may arise from various causes, such as the effect of cold applied to the skin, producing a suppression of the insensible perspiration; or it may be sympathetic with other causes, such as wounds, fractures, &c. or it may be rheumatic, or the consequence of too violent and too long continued exertion, either on the road or field.

In all cases, however, the first process should be to lessen the force and quickness of the circulation by bleeding, and the quantity to be taken should be regulated by the violence of the symptoms. The common practice of limiting the quantity to two quarts renders the operation of little or no effect; for that quantity bears so small a proportion to the whole mass of blood which the body of the animal contains, that the loss of it cannot have the desired end of unloading the blood-vessels. It is better, therefore, to begin by taking at least four quarts at once, and, by examining the pulse immediately afterwards, it may be ascertained whether any alteration has been produced in the circulation; and, in case the hardness of the artery is not removed, an additional quantity of blood may be taken until the desired alteration has taken place.

The next course to be taken is, to open and clear the intestines by mild purgatives and clysters; and, lastly, to give such medicines as are known to possess the property of relaxing the vessels of the skin, and increasing the insensible perspiration.

In regard to blood letting, the common farriers, and other ignorant persons, have a prevailing idea that the blood is always, in cases of fever, more or less in a diseased state. Hence they say, "the blood is very bad, or that it is all corruption," although they are incapable of distinguishing between the blood of a man, or that of a horse, and are utterly ignorant of the cause of the differ-

ence of its appearance when cold, between an inflammatory state and that of debility.

The blood when first drawn from a vein, appears of one uniform red colour; but when it has stood a sufficient time for it to coagulate, it divides into two parts, the one a solid, tough, red mass, and the other a yellowish fluid. The first of these is called the crassamentum, or red particles, the other, the serum or watery part.

The crassamentum itself consists of two different kinds of matter, namely, the red particles and the coagulable lymph, and these, when the animal is in a healthy state, are so intimately blended as to appear, when cold, of one uniform red colour. But, in cases of inflammation and fever, where the action of the heart and arteries is increased, the blood is longer in coagulating, and the red particles being heavier than the coagulable lymph which should suspend them, separate and fall to the bottom.

This is the cause of that yellowish or buffy coat which is seen on the surface of coagulated blood in these diseases; and as the mass of crassamentum is greatet or less in proportion to the serum, and more or less covered with a thick yellow matter, so are we to estimate the degree of inflammation existing in the system, and the necessity for farther bleeding.

The fact, therefore, is, that the only variation in the blood between a state of health and that of disease, consists in the difference of the relative proportions of these component parts with each other, and not in any change in the quality of the blood itself. Hence the absurdity of talking about a bad state of the blood must be sufficiently manifest. The degree of fever is shewn in the blood, principally by the toughness and tenacity of the red part, and by the quantity of the yellow buff which remains at the top.

When this yellow buff is very thick in proportion with the red part, it is a certain proof of a strong action in the heart and arteries, and of the existence of fever, and shews that more blood may be taken away, not only with safety, but with advantage. But the common practice after bleeding in fever is, to give a cordial ball, under the pretence of comforting the animal. The inconsistency and absurdity of this practice is so glaring, that it is extraordinary in the highest degree, that it should be adopted by any being that professes even the most moderate claims to rationality. The professed object of bleeding is to reduce the circulation, and to lower the fever; but this effect must be completely counteracted if a cordial, or any heating stimulating medicine, be given at the same time; the consequence of which must naturally be to increase the circulation, and with it the fever. But this mistaken practice of giving cordials in fevers originates from improperly considering the weak and oppressed state of the animal, as the original disease, when, in fact, it is only an effect, and will go off as soon as the fever subsides, and then only is the time when cordials should be resorted to, and even then with a sparing hand.

During the existence of fever, it is of the utmost importance, as has been before stated, to keep the bowels open by gentle purgatives and by clysters.

It will be necessaay to resort to such medicines as can be depended on as purgative, and the following will be found

Aloes, Barbadoes . .	4 drachms
Emetic tartar	2 drachms
Castile soap	2 drachms

in one ball.

A second ball of this quantity may be given in twelve hours after taking the first, with the usual precautions of bran-mashes and warm water—and the operation will be greatly facilitated by administering the following clyster :

Senna	2 ounces
Boiling water	2 quarts,

Infuse the senna, and having strained off the liquor, add syrup of buckthorn and common oil, each . . . . 4 ounces

THE GLANDERS

Is considered, by many practitioners, to be the same disease as the Farcy, and various experiments have been tried, which are alleged to lead to that conclusion. But it appears extraordinary that the true Glanders, even when it is confined to the nose, and, of course, is a mere local affection, is never cured, whilst the Farcy, although it may occupy the whole habit of body, is perfectly curable, as is proved in various instances that occur daily in the practice of the veterinary art.

The experiments just alluded to, consisted in inoculating the pituitary membrane of the nose of a sound horse with some matter taken from a Farcy-bud of another affected with the Farcy, and it appears that inflammation ensued, and, finally, that an ulcer was formed similar in its appearance to the Glanders. But it is certain that the inoculating the pituitary membrane of the nose of a sound horse, even with the discharge from a common wound, in case that discharge *be no. healthy*, will cause inflammation, and even ulceration, without the aid of any specific virus whatever. It is, therefore, very possible, that the discharge of the Farcy, when applied to the nostril of a horse, may produce a disease very much resembling the Glanders, but which may, nevertheless, be of a very different nature, and which, in contradistinction to the Glanders, may yield to such remedies as are usually employed in the Farcy. It is very certain, also, that, in some cases of violent catarrh or cold, not only a great degree of inflammation, but even ulceration of the membrane of the nose will take place, and which, by a hasty judgment, may very easily be mistaken for Glanders, especially as the maxillary glands are almost always in some degree swollen.

It requires, therefore, considerable caution and reflection on the part of the practitioner before he decides, as, for want of such precaution, a valuable animal might be doomed to destruction, without the existence of any necessity for such a measure being adopted.

The Glanders assume a very different appearance at different stages of the disease; but there are certain symptoms in almost every period sufficient to denote its existence

In the early stage of the complaint, there is generally a discharge of a whitish, glary fluid, and, most commonly, from one nostril only.

On comparing the two nostrils, it will be found that the sound one, from which there is no discharge, is of pale flesh-like colour, whilst the other, from which the discharge issues, is always many degrees higher coloured, and that in proportion to the degree

of inflammation which exists in it. In this state there are generally one or more ulcers to be perceived up the cavity of the nose, and the maxillary gland will be found hard and swollen, on the same side of the lower jaw as the affected nostril. But in cases of colds, the discharge is always from both nostrils, and the membrane of both is equally inflamed, and the glands also may be enlarged. It may occur, however, that the discharge from the Glanders may occupy both nostrils, and, in that case, the principal difference will consist in the appearance of the general bodily health of the animal, which, when affected with a cold, will generally shew it by dulness, or a difficulty in breathing, or an increased pulse, attended with loss of appetite. But in cases of the Glanders, the discharge may continue for months without the general health of the animal being at all affected.

As the disease becomes more inveterate, the discharge assumes a serious appearance, a fetid smell, and an unhealthy colour, or indeed a mixture of colours, being frequently composed of several, as yellow or green, with red or bloody streaks.

The progress of the disease is extremely uncertain, as some horses will endure it, even for many years, without any other obvious inconvenience than a slight discharge and the enlargement of the glands; and it often happens that these symptoms disappear for a considerable length of time on any change taking place in the habits of the horse, such as turning him to grass, &c. but they always return, and frequently with increased virulence.

In cases, however, where the disorder is more rapid, the bones and cartilages of the nose are speedily eroded by the malignity of the virus, and an absorption from the ulcers takes place, ultimately affecting the whole frame, and more especially the lungs. This last stage, however, may be either accelerated or retarded by particular circumstances, such as diet, air, and exercise; and it is a curious fact, that, at least, one-third of the hackney-coach horses in London are glandered, and which, nevertheless, continue to labour for two or three years without any apparent increase of the disease.

They are bought in that diseased state for two or three pounds, and if they labour for two or three years, are generally considered a good bargain.

This circumstance, in regard to the danger of propagating the contagion, is not, perhaps, of any great importance, because those horses always stand by themselves, and in the same stable, and never come into contact with any other horse; but there are cases of a somewhat similar description, where the keeping of glandered horses for labour is attended with more danger, and, indeed, calls for legislative interference. The instances here adverted to, relate to such glandered horses as are employed on the canals, to draw the barges from one place to another. It is true that these horses live by themselves, somewhat in the same way as those employed in the hackney-coaches; but as the canals run through grazing-land in various parts of their course, the boatmen make no scruple of turning their horses, during the night, into any adjacent field, and if there happen to be any other horses there of a different description, it is very possible for them to become infected.

An instance of this kind once came under

the knowledge of the author of the present work.

Two thorough-bred colts, yearlings, that had never been broke or put into a stable, were affected with the Glanders to a violent degree.

It was considered by the proprietor as a very extraordinary circumstance, that having never been kept with any other horse, these colts should have been attacked with the disease.

On enquiry, however, the author found that a canal ran on the side of the field in which these colts were kept, and that upon one occasion, some boatmen had been detected in turning their horses to graze in the same field; and hence a very fair presumption arose that the contagion was communicated in that way.

It is but seldom that either the appetite, or the condition, of a glandered horse suffers materially in the early stage of the disorder.

When, however, it has thoroughly entered the system, forming ulcers in the lungs and trachea, great pain and difficulty are experienced in respiration, and the discharge becomes very profuse, the appetite decreases, and the whole frame exhibits a disordered and emaciated appearance.

Whatever may be the primitive cause of this disease, it is certain that it prevails most in crowded stables and in large cities. Hence its prevalence amongst regiments of cavalry, and post and waggon-horses. When once the disease has taken root in such situations as are here described, the difficulty of eradicating it, (as the proprietors of such horses well know by fatal experience) is generally very great, and many carriers have to date their ruin to that unfortunate circumstance. It is, however, proper to remark, that dragoon-horses are sometimes as liable to catch the disease at out quarters as they are at the barrack-stables, for many of the little ale-houses in country towns receive bait-horses on the market-days, many of which amongst the little higlers are affected with Glanders and liable to communicate the disease. When barrack-stables become infected, the consequences are serious indeed, and it is a fact, that some of them have not been clear of the Glanders for fifteen or twenty years, thus propagating the disease through every regiment that might be stationed there in succession during the whole of that period.

It has been supposed by some that a great analogy existed between the Glanders and the venereal disease, and upon that supposition mercury has been given in a variety of forms. There is a case upon record at the Veterinary College, in London, of a coach-horse that was supposed to be cured by a long course of mercurials. This case was said to be established on the most indubitable grounds; but it does not appear that any subsequent case, (amongst the numerous ones which have occurred in that institution,) has yielded to the same course of medicine, or been attended with complete success.

There are many reports of horses having recovered spontaneously of the Glanders; but the validity of these reports rest wholly on the fact of the disease being clearly ascertained in the first instance, a circumstance always of a doubtful nature, especially in cases where the proprietor could not be presumed capable of making the necessary distinction. Instances undoubtedly have occurred of the discharge being wholly suspended for a while, particularly after the

animal has been at grass for some time; but, as has been before observed, the symptoms invariably return.

Therefore, when a horse exhibits unequivocal appearances of the disease, the sooner he is destroyed the safer it will be for the proprietor, as well as more humane to the animal.

Nothing but cases of experiment can justify any person in prolonging the existence of a glandered horse, especially as he is thereby constantly endangering the property of others.

It is, indeed, said, that there is an old statute in existence, which authorises any indifferent person to shoot a glandered horse wherever he might meet with one. Such a law would certainly be useful, but the execution of it would, of course, be attended with considerable difficulties, as the proof of the existence of the disease would not, at all times, be very certain, and, in failure of such proof, the executioner would incur the responsibility of heavy damages.

Whenever a horse is in the least suspected of being glandered, he should be immediately removed from all other horses, and kept by himself. In the next place, particular care should be taken that the rack, manger, and such other parts of the stable as he may have come into contact with, be thoroughly cleansed from every particle of the infectious matter, the virulence of which there is no means of eradicating except by totally removing the matter itself. The most effectual way of destroying the virus will be by scraping all the foul surfaces of the racks, mangers, and other parts, with knives or other sharp instruments, and scouring them afterwards with soap, sand, and boiling water; and, having repeated this operation thoroughly, the whole surface may be whitewashed with a thick coat of lime and water, which, after remaining on for a few days, may be washed off, and the stable be used again with perfect safety. It is usual in stables where one horse has been infected, for the proprietor to cause all the rest to be bled and purged, by way of prevention from catching the disease.

Such a practice, however, is of no avail, as the disease may be communicated under any habit of body whatsoever. It is probable that the disease is purely contagious, and can be caught only by the nose of a sound horse entering into contact with the matter discharged from a diseased subject. But infection is capable of spreading a disease by being in the same atmosphere alone, and hence the difference between contagion and infection.

Great stress has been laid by some of the old writers on farriery, on the virtue of fumigations of brimstone and other substances. Such fumigations can do no harm, but they should never be depended upon solely, as nothing but the method before recommended, of scraping the foul surfaces of the interior of the stable, can possibly eradicate the disease.

In regard to the experiments hitherto made public, unfortunately but little reliance can be placed on them. The French authors, particularly La Fosse, have been most diffuse and elaborate on the subject, and the original professor of the Veterinary College in London, Mr. St. Bel, published an account of some experiments made by him at the Veterinary School at Lyons. At that period, it seems the inhabitants of Lyons were obliged by

law to give information to the directors of the school of all horses affected with the Glanders in that city and its vicinity. Mr. St. Bel had consequently many opportunities of making trial of different remedies, both internal and external, as he was at liberty either to kill or preserve the glandered horses for the instruction of the pupils, as he might think proper. The cases he records are the following: viz.

1st. Three horses affected with the Glanders, discharging copiously at the nostrils, one seven years old, another eight, and the third eleven, were all put into the same stable, and subjected to the following treatment. Each was bled from the jugular vein. Their nostrils were injected with lime-water, in which was some vinegar and common salt. Their food was reduced one-third. Each took six drachms of kermes mineral and three of camphor, made into a ball, with flour and honey. The injection was used twice a-day, and the ball was administered on the fourth, fifth, sixth, and seventh days. On the eighth, in the morning fasting, and at night, a quart of red wine, saturated with regulus of antimony, was given. One of the horses began to purge on the ninth day, the second was affected in his bowels in a very trifling degree, and the third seemed to be wholly unmoved by the medicine

On the twelfth, the running from the nose had rather abated in all, but the pituitary membrane seemed more inflamed. The kermes ball was given.

Thirteenth, their food was reduced to half the original quantity, diluents were employed in abundance, and an emollient clyster administered to each.

Fourteenth, they had the red wine with regulus of antimony.

Fifteenth, one of the horses evacuated tolerably well, the other two very little.

Sixteenth and seventeenth, the injection was repeated. From this period to the twenty-fourth, the injection and the ball were used. The discharge was much diminished in the first and second horses, but still abundant in the third, through one fo the nostrils only. The lymphatic glands were much enlarged. On the thirty-second day, the ball was continued. Injections were made with alum and vitriolated zinc, dissolved in lime water, to which was added a small quantity of vinegar. The remedies were continued till the thirty-fifth, when the running disappeared in one of the horses. In less than a week afterwards, the running ceased in the second.

The bolus and injections were continued every other day only. The general treatment was continued with the third horse till the fifty-fifth day. The running ceased in him also after a treatment of two months from the first. A stop was now put to all medicines. The enlargement of the gland was removed also in one of the horses, and remained very little in the other two. Every thing seemed to promise a complete cure till the seventy-second day, when the running appeared again in one, and shewed itself at the end of three weeks in the second. About three months, however, elapsed before it returned in the third horse, but in all of them it was more violent than ever. The two former were first killed for investigation, when it appeared that the frontal and maxillary sinuses were filled with a purulent dis-

charge in both, the pituitary membrane was also ulcerated in many places, but all the other parts appeared in their natural state. The third horse was afterwards killed and opened.

In him the frontal, maxillary, and zygomatic sinuses, contained much bloody matter, the membrane was ulcerated to a great degree, the bones carious in many parts, and the lymphatic gland on the right-side was become schirrous. In the right lobe of the lungs, five vomices were found of the size of a pigeon's egg. No other part seemed to be morbidly affected. Two saddle-horses, of nine and seven years old, decidedly glandered, were put under the following regimen. After being restricted to a low diet for two days, they were let blood. On the fourth day the sinus of each was trepanned.

There was injected through the openings a mixture of lime-water, vinegar, and salt. On the sixth day of treatment, each had four quarts of lime-water, sweetened with honey, administered as a drench. This and the injections were continued till the fifteenth day.

On the sixteenth the running had diminished one half, and the swelling of the glands was augmented. On the next day the running became more abundant, but the matter seemed to be of a better sort. The lime-water was continued until the thirtieth day, in the proportion of six quarts a day. The horses now becoming dull and disgusted with their food, this course of medicine was suspended till the thirty-sixth day, when they were ordered two quarts a day of strong infusion of camomile. This being continued till the forty-second, their appetites returned, but the discharge, as well as the affection of the glands, continued the same.

On the forty-third day, an injection with alum, vitriolated zinc, lime-water, and vinegar was administered, and continued a week, at the end of which time the matter was become whitish, and flowed in small quantity, but the first horse now discharged at both nostrils. At this time injections were given, made with diluted spirit of wine, green vitriol, and gall-nuts.

On the sixty-sixth day, the running had almost disappeared; both horses were in good spirits, eat and drank as usual, and they were walked out an hour every day. Shortly after, the first horse appeared to be cured, and continued so about a month, after which time the running came on again, the matter became bloody and fetid. Being then considered incurable, he was killed. On opening the nose, it was found that the membrane was corroded, particularly on the right-side; the superior horn was almost destroyed, and the lachrymal duct choaked up with purulent matter. The dissection, in other respects, offered nothing particular except a small portion of the interlobulary texture of the lungs, which had imposthumated; but the matter had not penetrated into the bronchia. The maxillary glands contained a concreted gum.

The other horse preserved, to all appearance, perfect health from the beginning of June to the end of August in the same year. At that period the running returned, and in the space of three weeks, the disease increased to such a degree, that it became necessary to kill the animal. On opening him the pituitary membrane was found ulcerated

to a great extent of its surface, the cartilaginous partition was attacked by the matter, the sinuses contained very little of it. A large cart-horse, ten years old, having the usual symptoms of the Glanders, was put upon the following course. The animal's food was reduced to bran and white water, and he was bled twice in the space of two days. On the third, he underwent the operation of the trepan in two places, and he had injected into the usual passages and sinuses a strong decoction of wormwood with the addition of honey. On the tenth, the injection was of the weaker lime-water only, and it was continued till the sixteenth, when three drachms of Ethiop's mineral in a bolus were given. The injections were made with the first lime-water, and continued till the twenty-fourth, as also the bolus, with the addition of a drachm of Ethiop's mineral. At this period the running was diminished one half, and the matter had improved. The same course was pursued till the forty-first, when the running was found to be almost suppressed, and the size of the gland considerably diminished. The injection and the bolus were continued till the fiftieth, when the running quite ceased. The injection was now repeated only every other day, and the Ethiop in the bolus was reduced to two drachms.

On the sixty-first day, all medicine was discontinued, and soon after the horse was gradually brought to his usual quantity of food. He was placed in another stable, his dress was changed, and he was walked out every day in an inclosed place, during which time his former stable was well washed and fumigated. These precautions, however, did not prevent the running at the nose from returning at the end of three weeks, and the animal was then killed. On opening his nostrils, the membrane was found to be ulcerated in three or four places. One of them, which was broad and deep, had attacked the bony substance.

The sinuses contained, as usual, much yellowish matter, mixed with blood. In this case, part of the villous membrane of the stomach was slightly inflamed, the cardiac orifice was rather more so; the inflammation had also reached the small intestines; the left lobe of the lungs was also somewhat inflamed.

Two coach-horses, the one seven years old and the other eight, were affected with the Glanders. The first was in the confirmed state, the second only at an early stage of the complaint. They were kept separate and put under the following course:—They were kept without hay for some days, and had only bran and water for their sustenance. They were each bled, and a decoction of marsh-mallows and camomile was injected up their nostrils. The horse that was most infected, had a bolus of four drachms of calomel incorporated in a sufficient quantity of flour and honey. The other horse took a bolus composed of two drachms of precipitate incorporated with honey. The injections and the boluses were continued till the twentieth day.

On the twenty-first, the discharge was much increased in the former horse, the matter also was brownish and bloody at intervals, and the lymphatic glands were enlarged. In the latter horse the running was less abundant, clear, and transparent, and the glands less hard and less enlarged. The same course was followed and adhered to in both till the thirty-first, when it appeared

that the running had ceased in the latter, to which, however, the same course of medicine was continued a week longer.

On the thirty-sixth, the operation of trepanning was performed on the former horse. The cavities were injected with lime-water; afterwards the injections were used which are mentioned in the first and second cases. The evacuations in consequence of the bolus being great, they were suspended, but the injections were continued till the sixty-fifth day.

The running now appeared and disappeared occasionally, but at last became constant and of a bad sort. As the animal fell away rapidly, it was thought best to kill him. On opening the body, however, nothing particular appeared, except an infinite number of little ulcers on the pituitary membrane of the nose. The sinuses contained but little matter. The other horse appeared to be radically cured, which was ascribed to the good habit of the animal's body rather than to the effect of the medicines.

A saddle-horse, about eleven years old, newly infected with the Glanders, was let blood, confined to low diet, and had several clysters administered for three days. He was then treated exactly as the horse last mentioned, but the success was not the same; for, after three months perseverance, he was obliged to be killed. On dissection, the pituitary membrane was found ulcerated, but nothing else remarkable could be traced.

Another saddle-horse, nine years old, with the confirmed Glanders, which had made some progress, was put under the same course of medicines as the preceding ones for ten weeks. At the expiration of that period, it was ascertained that the remedies had produced no good effect. The discharge was abundant, bloody, and fetid; the breathing became extremely laborious; in short, all the signs of approaching dissolution appeared, and the animal shortly after expired. On dissection, the nostrils exhibited the same appearances which had been observed in similar cases, but with this additional circumstance, that within the lungs was found a collection of fetid pus, mixed with the natural fluid of the bronchia. It was thought possible that the virus of the Glanders might have produced these effects.

Three hackney-coach horses, eight, nine, and eleven years old, were affected with the Glanders in the same degree. One ounce of Ethiop's mineral was given to each. On the fourth day each was trepanned, and the cavities of the nose were injected with a detergent liquor. The Ethiop's mineral was continued to all the three horses till the tenth day. On the eleventh the purge was administered as before, and with the same effect. All medicine was now suspended, except the injection, till the fifteenth, when they returned to the use of Ethiop's mineral, in which course they continued till the end of the twenty-fourth day.

No medicines were administered for the next two days, but bran-water and clysters were given. At that period the discharge of matter was diminished in one, but it was increased in the other two. On the twenty-seventh, therefore, they took the usual medicine. On the twenty-eighth, they purged considerably, and, on the next day, seemed dejected and disgusted with their food. All operations were therefore suspended until the thirty-fifth, when the injections were repeated. On the thirty-sixth the appetite re-

turned. On the thirty-seventh, the Ethiop's mineral and injection were continued till the forty-fifth. After two days the running diminished sensibly in the first; it had even disappeared for three days, but it continued still in the two others. The lymphatic glands were in the same degree tumified.

On the forty-eighth day, the purgative was given, but the nitre was substituted for the jalap.

On the forty-ninth, one of the three purged very little; the other two not at all. They seemed very dull, nauseated their food, and changed for the worse. These symptoms were ascribed to inflammation in the stomach and intestines, occasioned by the use of the medicines, in consequence of which they were discontinued till the sixtieth day, when the Ethiop's mineral was renewed and continued until the seventieth. At the end of that time, however, the disease appeared to be incurable in the two last-mentioned horses; they were therefore killed. On opening their nostrils afterwards, nothing new was discovered. The pituitary membrane was ulcerated, as in most of those before opened; the pleura and lungs seemed to be sensibly inflamed, and the inflammation was yet greater in the villous membrane of the stomach, the pylorous, and the smaller intestines.

The first horse, however, seemed to be in a fair way of recovery; the matter became transparent and in small quantity. The discharge was soon suppressed altogether, by injections of lime-water, and the usual medicines were continued till the ninety-sixth day. The next day, the Ethiop's mineral was discontinued, but the animal was purged three times in the space of a month. He was then returned to his owner, seemingly in good health, but he was sent back at the end of two months with every appearance of confirmed Glanders. The former treatment was persisted in for the space of six weeks to no purpose; the animal was then killed and opened. Several fresh ulcers were discovered in the pituitary membrane, but it appeared also that many had been cicatrized by means of the injection.

Four fine cart-horses were brought for experiment in a state of Glanders. They were put upon the treatment just described, but with no better success. They were killed at the expiration of two months. The dissection of their bodies furnished nothing deserving of particular notice.

Two horses, the one an English hunter, the other a Neapolitan manege horse, the first ten years old, the other twelve, were infected with the Glanders. The following treatmen was set on foot. The hair of both was shaved from the neck down to the buttocks. Frictions of mercurial ointment were made over the buttocks in the quantity of about an ounce at each time.

On the twenty-second day of treatment, the parotids began to swell, and shortly after the maxillary glands were in the same condition. The frictions were made on the back from the loins to the withers. On the twenty-fourth all the parts of the Neapolitan's head were greatly swelled, and salivation began to take place. On the twenty-fifth he could scarcely open his jaws. Mr. St. Bel, therefore, let him blood twice in the same day, repeatedly injected into the mouth barley-water with honey, and gave him the same night a laxative clyster. From this time till the thirtieth, the same treatment was conti-

nued; the salivation was abundant, but the stricture in the jaws abated on the twenty-eighth. About this time also the swelling of the glands began to diminish, and the animal drank water with nitre dissolved in it.

These means were continued till the forty-first, when it was found that the running at the nostrils had increased, but the fulness of the head and the salivation were less. The animal was left quiet till the forty-seventh day, when Mr. St. Bel renewed the frictions in doses of an ounce, and these were continued till the fifty-seventh day.

On the fifty-eighth, the fulness of the head took place again, and the salivation became copious. To reduce both, the same means were resorted to as before. The tumefaction and salivation were not so considerable in the English horse. After having undergone this mercurial course, the animals were left to themselves for a month, but to the great mortification of Mr. St. Bel, he perceived that the Glanders had rather increased in malignity. He then continued another month but without success. At length he caused the two animals to be killed. The opening of the nose exhibited in a greater degree the same ravages that have been often mentioned. The inside of the mouth was a little inflamed, and the excretory ducts of the salivary glands were increased in size. A charger, nine years old, newly infected with the Glanders, was subjected to the same treatment as the two preceding ones. After the eleventh friction, the fulness of the salivary glands became considerable, and the blood flowed to the head with such impetuosity, that it was impossible to prevent fatal consequences. The animal died within twenty-four hours. Four other horses were subjected, in the same year, to the treatment of mercurial frictions, but without success. A large draught-horse, seven years old, suspected of having had the Glanders six weeks, and which had previously been under the care of a common Farrier, was brought to the Veterinary School at Lyons, and treated as follows. He was bled at the jugular vein, had clysters, and tasted nothing but white water during the space of twenty hours. Spirit of sal ammoniac was given, mixed with an infusion of angelica root, taking care to keep him well covered in a warm stable. This first dose quickened the circulation and increased the degree of heat over the whole body, without exciting perspiration.

The next day the dose of volatile alkali was increased two drachms, still using the infusion of angelica. The drink was given at six in the morning; at eight the pulse was high, at ten the perspiration was perceptible, and continued till six at night. Two clysters were given in the course of the night. The horse's drink was just coloured with wheaten-bran. This treatment was observed for three following weeks.

At that period the drink was discontinued for a week, but the clysters were still given. On the twenty-fifth day of treatment the disease had somewhat diminished, but the lymphatic glands were rather harder. On the thirty-second, the running was trifling in quantity, and the matter began to be transparent. On the following day, the use of volatil alkali in infusion of angelica was renewed, which produced only a small perspiration.

On the same day the nostrils were injected with a decoction of centaury and gentian, and this was continued till the forty-fourth

During all this time the sweats were sufficiently copious, the urine in small quantity, and of a reddish tint, the dung hard and dry, notwithstanding the daily use of emollient clysters. As the animal was much wasted, and appeared weak, he was left to himself till the fifty-fourth, when the injections with lime-water were employed. On the sixty-second, the running disappeared entirely. The injections were continued for a week, at the end of which the medicines were discontinued. During all this time the cloths which covered the animal were washed and shifted every day, the greatest cleanliness was also observed in every other respect. At the end of a month he was turned to grass in a low and marshy place, but, after two months, the Glanders returned, and he was killed. Mr. St. Bel, however, had no opportunity of opening this animal. Four horses of various ages, diseased with the Glanders, were successively treated in the method just described, but without success. The opening of their bodies presented nothing extraordinary. A large Swiss horse, seven years old, employed in drawing boats on the river Rhone, having the confirmed Glanders, was treated as follows. He was dieted for twenty hours, after which he had the following dose, viz.

Aloes	6 drachms
Jalap	2 drachms
Calomel	1 drachm
Nitre	5 drachms

Honey a sufficient quantity.

Two days after this purge, an incision was made in the skin of the chest, in which was introduced some corrosive sublimate, by way of a caustic. The running from this part became very abundant in a few days, the horse being very fat. He was made to take half an ounce of liver of sulphur, incorporated with two ounces of honey.

Injections also of lime-water were administered twice daily. This treatment was adhered to for the space of six weeks, at which time the running had almost ceased. It seemed, that the evacuation of the humour by the chest had occasioned some benefit. Instead of the liver of sulphur, a bolus of balsam of sulphur was now given, and continued for a month; at the end of which time the horse had no running from the nostrils, and appeared to be perfectly cured. He remained in that state for two months, when the disease appeared again in a slight degree. This animal lived for three years, but at last died of a consumption, the common termination of inveterate Glanders. The treatment above-mentioned was adopted in the cases of five other horses, but without its having the good fortune to cure any one of them. Mr. St. Bel states that he restored many horses that were thought to be glandered by persons who had not sufficient judgment to distinguish the true Glanders but he confesses that he never succeeded, except in one instance, in effecting a complete cure of that disease. That instance, however, which might have been more valuable than all these instances of failure, he has not thought proper to detail. Nevertheless, if credit is to be given to his assertion, although he has withheld the particulars of such an important fact, it will at least serve to strengthen the idea, that the Glanders is not an incurable disease in every instance.

Mr. St. Bel was induced at this period to ascertain the effect of inoculation of the vi-

rus of the Glanders into the bodies of sound animals as well as the production of the disease by contact.

Two sound horses, the one fresh from grass, aged six years, and the other nine years, just taken from work, were placed near a horse that had the Glanders. The former caught the infection, and had a discharge from the nostrils two days afterwards; the second caught the infection at the end of three months. A horse thirteen years old was made to drink the same water out of the same pail with a horse that had the Glanders, and continued to do so for two months, but he was kept apart from the diseased animal during that time, and the result was that he did not catch the Glanders. A horse nine years old, in tolerable condition, placed by a horse that had the Glanders in the last stage of the disorder, caught it at the end of forty-three days. Three old horses destined for anatomical dissection, having been inoculated with the virus in the neck, did not catch the disease. The experiment was repeated on various horses of all ages, without producing any effect. It was also performed on an ox, a sheep, and a dog, without in the least affecting the health of those animals. The coverings and saddle that had been used to glandered horses, being placed on several horses in good health for a month, and during the heat of summer, did not convey the distemper. The virus mixed with flour was given to three horses for the space of a week, communicated the disease to the youngest at the end of a month. The two others did not sicken till some time after. Mr. St. Bel observes, that it is only by multiplying such experiments, that it can be ascertained in what way the disease may be communicated. We should by such means, he says, be certain of attacking the disease in its origin, and might probably attain a method of cure, for notwithstanding the failures which have hitherto taken place, there is no reason to despair of ultimately accomplishing so desirable an object.

The animal, vegetable, and mineral kingdoms abound with an infinite number of substances, the combination and rational application of which will, perhaps, in time, overcome those obstacles which have hitherto opposed the progress of the Veterinary art in this and many other diseases. Discoveries wait only favourable opportunities to disclose themselves, and the most favourable are those which are furnished by scientific associations extending their patronage and encouragement for the perfection of the arts. In concluding the account of his experiments, he observes, "that many circumstances have convinced him, that the virus of the Glanders has more activity in southern than in northern countries; and that its progress is more rapid in the mule and the ass than in the horse, but that the former is not so subject to receive it by infection, or contact, as the horse is."

The foregoing detail has been given by the author of the present work, with the view of shewing what has been done formerly in regard to attempts to cure this disease.

Many of the experiments are but of little value, from the known inefficacy of the medicines employed, but if those which were made by the introduction of mercury into the system are correct, and are to be depended upon, they serve to prove an important fact, namely, that that medicine is not a specific for the Glanders, and consequently that the

practitioner must look to some other source for the cure of that obstinate disease. Opportunities rarely occur to facilitate the prosecution of experiments, as few persons are willing to keep a glandered horse on their premises when they have ascertained the existence of the disease, but, in barrack-stables, where they have separate boxes for diseased horses, a course of experiments may be easily carried on by regimental Veterinary Surgeons, without any expense to themselves, and without much trouble.

To those gentlemen, therefore, we must look principally for the attainment of such a valuable discovery as the cure of the Glanders.

STAGGERS, OR APOPLEXY.

This is a disease to which draught-horses appear to be more subject than any others. It may arise from various causes, but it may be ascribed most frequently to some irregularity in the action of the stomach. A draught-horse may, indeed, sometimes drop down on the road in a state of insensibility, merely from the collar being so small and tight as to press against the jugular veins, and thereby prevent the return of the blood from the head, but this inconvenience is generally removed when the cause is discovered, and ceases to operate against the free circulation of the blood. This circumstance, however, points out the necessity of examining the collar previous to the horse's beginning his labour, to ascertain that it fits properly.

In cases where the disease comes on progressively, its appearance is first denoted by a sleepiness and heaviness in the eyes, and almost a continual hanging of the head, accompanied with a considerable feebleness, especially on being moved. As the disease advances, the animal presses his forehead against the wall with great force; and when any attempts are made to remove him he appears roused and agitated, but returns to his former position immediately. During this state there is very little apparent alteration in the motion of his flanks, nor is there much derangement in the pulse. If, however, the complaint is not stopped in its progress, the symptoms increase, and the brain becomes so much affected as to produce frenzy and death.

The disease, as has been just observed, may arise from various causes. It may in some instances be produced by blows on the head, bringing on either extravasation, or a partial thickening of the membranes, so as to cause compression on the brain, or it may arise from over distension of the stomach, in consequence of its being unable to digest its contents. In all these various cases, however, the symptoms are so nearly the same, that it is very difficult, if not almost impossible, to discover the actual cause of the

disease. There is, indeed, a temporary state of Apoplexy, or Staggers, which attacks some horses as soon as the circulation of the blood is increased by exercise. This is known amongst Farriers by the name of—"Megrims." It shews itself by the animal's stopping suddenly and shaking his head. He generally recovers in a few minutes if allowed to stand still until the rapidity of the circulation is somewhat reduced; but if he is urged forwards imprudently, the fit increases to such a degree as to occasion his falling, to the great danger of his rider. The author of this treatise, when a pupil at the Veterinary College, about twenty-four years ago, purchased a horse at Aldridge's Repository, without knowing that he was subject occasionally to this complaint.

The horse had a broken knee, but his action was, nevertheless, so remarkably good, that the blemish was attributed more to accident that to any natural imperfection. The first trial of the new purchase was by a ride to Epsom races, but, as if in ample confirmation of the uncertainty of all human affairs, the journey was not half completed, before the animal, being seized with a paroxysm of the Megrims, fell prostrate, and betrayed the secret of the broken knee.

This occurrence, as may be supposed, occasioned much mirth amongst his fellow pupils, who did not fail to cut many jokes on this first proof of the author's skill in horse-flesh.

In all cases of confirmed Staggers, however obscure the cause may be, the same remedy may with propriety be resorted to, namely, first to unload the blood-vessels by bleeding, and the stomach and intestines by purging; and as the disease is invariably fatal if relief is not soon obtained, it must be evident that half-measures will be of no utility whatever. It will, therefore, be necessary to take at least six quarts of blood at once, and when this operation is completed, a blister may be rubbed on the upper part of the neck on both sides of the mane, beginning just behind the ears. The blister may be composed as follows,

Cantharides powdered . 2 drachms
Spirits of wine . . 2 ounces,
mixed in a phial.

The following purge may then be given, viz.

Calomel . . . . 2 drachms
Barbadoes aloes . . 1 ounce
Ginger . . . . 1 drachm
Honey sufficient to make them into a ball.

The horse to have bran-mashes and water with the chill taken off to drink. At the same time it will be of some advantage to back-rake the horse, so as to clear the rectum of any hardened dung which might impede the quick action of the medicine.

Before the symptoms increase to any degree of violence, it will be advisable to move the horse into an open box, and to tie the end of the halter-rein to the centre of the cieling, or to a beam, by which means the animal will be prevented from running against the wall and bruising his head, as the halter will then only admit of his moving round in a circle.

Gibson gives a very rational description of this disease and its probable causes. He says it is by no means an uncommon case for it to arise from a stoppage in the stomach and intestines, and that it sometimes proves fatal when not rightly understood. "These

stoppages," he says, "proceed from various causes, and only affect the head when they happen to be of some continuance. Sometimes they are caused by full feeding, with the want of air and sufficient exercise, especially in hot dry weather, and in constitutions naturally hot, but most usually from the quality and nature of their food, as bad hay, or any other bad provender, or rank clover, when it has imbibed moisture from the damp air, which renders them so tough that they lie like a wad, and distend the guts so as to impede their proper functions. Other things have also the same effect, as soiling horses with any kind of green herbage, such as vetches, or clover, when it happens to be grown too old and tough, and has lost its succulency, especially when it has been cut too long before it is used. Any of these may cause stoppages in the first passages, and sometimes excite such disorders as by their continuance affect the head in a very strong manner. When the Staggers and convulsive symptoms arise from such causes, the horse generally looks dull about the head, with his eyes swoln; he reels and totters as he moves; his mouth is generally contracted, but not shut up; he breathes short upon the least motion, and for the most part has a short cough, and the motion of the flanks becomes irregular, though seldom violent. For the same reason he scarcely ever lies down till some relief is afforded him, because the extreme fulness of the abdomen causes great uneasiness whenever he offers to bend his body, insomuch, that many when they see a horse in this condition, imagine he has received some hurt in his back or loins

"Other signs are costiveness, for he is apt to strain much when he goes to dung, and makes many fruitless attempts; he stales but little, and that of a dark colour, which often proceeds from the obstruction which the gall meets with in its passage from the liver into the duodenum, and thence the jaundice sometimes attends this complaint. In order to effect a cure, let some person that has a small hand rake the horse thoroughly, and bring out the dung from the rectum, which is generally hard and made up of little small balls of a blackish colour, and quite dry. After this, let him have plenty of emollient oily clysters, made of mallows and such like, but in places where these cannot readily be got, they may be made of pot liquor, or water-gruel.

"To two quarts of this liquor may be added a pint of linseed oil and half-a-pound of treacle.

"This should be given milk-warm, and repeated every day, at least till his dung comes away with ease, and grows soft. His diet should be the best hay, scalded bran, or boiled barley, till he has been thoroughly emptied, and for some time afterwards. At first the dung that comes away in the clysters will be in small hard balls, and sometimes along with it a putrid slime, which when discharged gives great relief, but, by the continuance of the clysters, and the open diet, the dung soon alters and comes away in such great loads, that it appears wonderful how it could have passed through the fundament; but as soon as this happens it brings sure relief, and a passage is made for gentle purges, which, in this case, are always of great use

"Take—Lenitive electuary
Cream of tartar of each four
ounces

Brown sugar, two ounces,

"Mix them in a pint and a half of ale, the ale to be made hot, that the cream of tartar may be the more easily dissolved in it; after that the sugar, and last of all, the lenitive electuary.

"This being given in the morning upon an empty stomach, blood-warm, will probably begin to work before night; and it seldom makes a horse sick, as the stronger purges are apt to do when he is full and costive, so that he will drink warm water, or warm gruel, without reluctance. It may be repeated three or four times, allowing always two or three days respite between each draught, keeping him to an open diet, with proper exercise, till he recovers his usual vigor.

"By this method several horses have been cured that were much affected with convulsive symptoms, and the event plainly shewed that this affection was owing to a stoppage of the alimentary functions. Of this the following was an instance. A horse was sent home from Hounslow-heath when the troops were encamped there. He was so much convulsed that he could neither eat his hay or corn, and his neck so stiff that he could not reach to drink. The man that led him was forced to stop every hundred yards, on account of the stiffness of his limbs and the shortness of his breath. When examined, however, he did not appear to be so much convulsed as those that have worms in the stomach, or intestines, or imposthumations in the viscera. By working his mouth it might be opened a little, neither were his limbs so stiff or so much contracted. It was evident he was very costive, for he often made motions to dung, but could not part with more than a few small hard balls, which shewed the necessity of opening oily clysters.

"He had two every day at first, which brought him to dung pretty freely, and soon recovered the use of his jaws so as to eat hay and scalded bran. After this he had opening drinks administered to him, and the dung he voided in a copious purgation was in vast loads, and must have lain a considerable time pent up within him, and when this load was once discharged he soon recovered, and without the help of any other means."

Gibson also mentions another extraordinary case of this nature, in a horse belonging to the second troop of horse-grenadiers, at grass about three miles from town, along with some others of the same troop. He was observed to lag behind his companions by himself, for several days, which evidently denoted indisposition. But this was not much observed by the person who looked after the horses, till he was scarcely able to move at all, otherwise his death might probably have been prevented.

He was so extremely oppressed, that it was with much difficulty he was got to town. His eyes were so set in his head that he took not the least notice of any thing that came near him, but appeared the same as if he had been already dead, and upon every motion he reeled and bore forwards ready to tumble on his nose, if he had not been supported. His legs were stretched out and stiff, without the least use of his joints, and by their coldness shewed the blood to be already stagnant in those parts, so that in a few hours after his arrival at the troop-stables, he dropped down dead without the least struggle.

"When opened, his stomach and all his intestines, both large and small, were filled and crammed to such a degree that it would have been impossible, by any means whatever, to have procured the least vent. For all the aliment that was in the stomach, and the dung in the intestinal canal, from one end to the other, was entirely dry, and without moisture, and before they were laid open appeared as hard and full crammed as a sausage, without the least yielding or softness in any part. The matter contained in them was no less extraordinary, the stomach being filled with acorns, sloes, oak-leaves, and such other things as he could pick up about the hedges, some green and some withered, for it was towards the latter end of the year when this case occurred. The contents of the intestines were chiefly leaves, neither well chewed nor digested, with a mixture of grass, but there was little or no grass in his stomach, but chiefly acorn-cups and leaves, which was distended to its utmost extent, so as to keep the muscles at their full stretch, by which their action, which is necessary in digestion, was altogether at a stand.

"This horse, it seems, had been turned to grass in a very rank after-math. Here he had been so surfeited that he came to loath his grass, and his appetite being depraved, he had taken to those things that were bitter and sour to the taste, which generally aggravated his disorder by their restringent quality. The contents both of his stomach and intestines, when rubbed between the hands, crumbled like dung dried in the sun, without possessing the least drop of moisture or any ill savour; for there was no room for air to be pent up in them, from whence arises that stench that occurs in opening the intestines of dead animals, and indeed it was somewhat extraordinary that he lived to come to this extremity, when the muscular action of the stomach, and the peristaltic motion of the intestines, by which the expulsion of the excrements is forwarded, must in all probability have been lost for several days.

"There seemed to be no other reason for his holding out so long, but that he was in all respects extremely sound, and little else was to be seen but a beginning inflammation in some of the internal parts, which, considering how unmercifully he was crammed, could not but be the case.

"Instances frequently occur among men of voracious appetites who have died suddenly after an excessive meal, by filling their stomachs to such a degree that the strongest emetics could have no effect upon them. But these instances in men are not very frequent, for if a man's stomach is not filled too suddenly to its fullest extent (which has sometimes happened to those who have brutishly eaten for a wager) he will generally have a spontaneous inclination to vomit, and so get rid of his enemy. But an excessive fulness of the stomach and guts must always create great disorder in a horse that has no natural power to vomit, so that all possible means should be used to preserve the passage of the intestines free and open, according to the method above described, namely, by clysters, lenitive purges, and an opening diet, that being all the chance he can have for his life in such circumstances."

The foregoing are the observations of Gibson, who certainly was the most experienced and the most rational of the old practitioners in Veterinary medicine, and his opinion respecting fulness of the stomach being

one of the causes of Staggers is confirmed by instances that occur every day.

In farmers' stables it is a very common practice with the waggoners to rob the granary for the purpose of feeding their horses to an extraordinary degree, and on these occasions they are not very nice in their selection of any particular sort of grain, as they have been known sometimes to give wheat to their horses. A case of this kind once occurred to the author of the present treatise, where a waggon-horse was apparently labouring under a very severe attack of the Staggers. Every means to procure a passage through the intestines were resorted to, but in vain; and, after a few hours extreme suffering, the animal died under the highest paroxysms of frenzy.

Upon opening the body, the stomach was found distended to the utmost degree, and so hard that no impression could be made on it whatever. The inside was full of wheat, which having been about half masticated, had formed an undigested pulp, which had cemented the whole together into one solid mass, and evidently occasioned the horse's death. But independently of these tricks of the waggoners, it is certain that all horses that stand together in stables without being separated from each other by stalls, such as waggon and post-horses, are more exposed to the danger of overcharging their stomachs than any others. For it often happens that a voracious feeder will not only eat his own allowance of corn, but also that of his neighbour, and in order to accomplish this double task, he eats proportionably fast, and consequently cannot chew his food sufficiently for the purposes of an easy digestion. The best mode to obviate this inconvenience is to carry up a dividing board of the same depth as the manger, up to the cieling, in those stables that are not divided by stalls, and this will effectually prevent one horse from putting his nose into that part of the manger which belongs to his neighbour.

Another circumstance which contributes greatly to impede digestion, especially in horses that work hard, is the want of a sufficient quantity of water to drink. It is the common practice to water horses only twice a day, morning and evening, in which case they become extremely thirsty and drink with great eagerness, and generally a pailful at once, whereas if they were watered four times in the course of the day, they would neither be so eager, nor in general drink so much on the whole, as they do under the other circumstance, whilst their digestion would be greatly promoted by a more frequent supply of fluid to the stomach.

Hence it is that bran-mashes given occasionally are so useful in gently opening the bowels, and taking off that constant state of tension which they undergo in consequence of the hardness and dryness of the food rendering the dung of the same quality. But there is a very absurd and unfounded notion amongst all stable-people, that water has a tendency to make horses become broken-winded; and, upon this idea, they would, if possible, deprive them of it entirely. The fact, however, is, that a horse is more likely to be broken-winded from the want of a sufficient quantity of water, to repair that waste and consumption of the fluids of the body which is occasioned by copious sweating during his labour; and hence the blood becoming too thick and sizy, the circulation is not so free through the finer vessels, and

obstructions arise which terminate in the production of disease.

In cases where a horse is attacked with occasional symptoms of the Staggers, and constantly carries his head on one side and out of a perpendicular line, there will be reason to suspect the existence of some organic disease, such as dropsy in the brain, or a thickening of the membranes, occasioning some partial compression on that organ. In such a case no relief can be afforded except by the operation of trepanning, and which is attended with many obstacles, owing to the uncertainty which must exist in regard to what part of the skull is likely to be the exact seat of the disease. In sheep this disease is called the Gid, and it shews itself by the animal holding his head awry, and turning round in a circle constantly to one side. After the disease has existed for a certain length of time, nature attempts to relieve herself by making more room in the cavity of the skull than the bony case originally supplied, and for this purpose she begins by absorbing the skull immediately over the part affected, so that at last the bony part is completely removed, and nothing remains but the membranes.

When arrived to this state the head feels soft in that part, and the shepherds, (some of whom do it with great expertness) cut through the membranes with their pocket-knife, and take out the bag which contains the water, and the animal is instantly relieved. The opening in the skin ultimately heals, and the sheep suffers no subsequent inconvenience from the operation.

The next disease which is connected with the nervous system is

THE PALSY.

It differs, however, from the locked-jaw, the mad-staggers, and some of the epileptic affections, inasmuch as those diseases are attended with an excess of nervous irritability, whereas in paralytic disorders the nerves appear to have become insensible to any stimulus whatever.

In a Palsy the use of some part of the body or limb is lost, and when the brain is affected the use of one side is sometimes taken away. This last attack is called Hemiplegia. In this case the parts affected become flaccid and relaxed, without the power of motion, and, sometimes, without any sense of feeling, in which respect the Palsy affects the body in a manner quite different from the Epilepsy. When the Palsy seizes the animal, it is discovered by the use of some particular member being totally or in part lost, particularly the limbs, sometimes one, sometimes more, and especially the hind-legs. This kind of attack is by no means uncommon, and tremors and shakings sometimes attend in such cases, but the other attack called Hemiplegia does not occur so frequently as the former.

When the Palsy seizes one limb only it is not often dangerous, and is less so when there is a continual shaking and an involuntary motion, but when it attacks both the hind limbs, the case is then very troublesome, and the horse is not able to stand, without being supported by some means or other, until he has recovered the use of his limbs, at least in some degree. In an Hemiplegia the use of one side is totally taken away, and the horse falls suddenly, and though at first he will strive very much to

rise, yet it is neither in his own power, nor in the power of any by-standers, to raise him up so as to stand, for though he may be able to move his limbs on one side, yet he has not the least power on the other, and his muscles are so flaccid and relaxed on the paralytic side, that when he falls his limbs double under him, and this case in a horse is so desperate, that there can scarce be any possible means of recovering him. Horses that lie out at grass upon cold wet grounds often come up with numbness in their limbs, of which they in some degree lose the use for a considerable length of time, but this is not a true Palsy, unless the head is affected, but it is rather a case of rheumatism. In a true Palsy the blood is generally very thick and sizy, proceeding principally from high feeding and want of sufficient exercise, from bad provender, from noxious fumes, or from bad air. It may also, on the other hand, arise from too hard working and want of good keep, and sometimes from mere old age, which last is the most hopeless of all.

When paralytic disorders happen to old horses that have been delicately kept, or on the contrary have been in low keeping and hard worked, if the disease attacks one whole side, it is scarcely worth our while to attempt a cure. If the Palsy seizes only particular parts in old horses, the cure will be difficult and generally only palliative; for there will always remain a degree of numbness and insensibility in those parts which will render such horses of little use. But paralytic disorders in young horses, proceeding from the other causes just mentioned, are often removed without much difficulty.

In the cure for the Palsy, bleeding should seldom or never be practised, except where the animal is young and very fat. The bowels should be kept open by a pretty active purge, and stimulating embrocations should be rubbed freely on the part affected. The purge may be composed as follows,

Barbadoes aloes . .	8 drachms
Castile soap . . .	2 drachms
Ginger . . .	2 drachms

in one ball,

to be given with the usual precautions of mashes and water with the chill taken off.

The following embrocation may be made use of for the external application.

Oil of turpentine .	4 ounces
Camphor rubbed down	1 ounce
Common soap . . .	1 ounce.

Incorporate the above into a liniment, to which, if it should be necessary to increase the stimulating quality, one ounce of tincture of cantharides may be added.

Let the affected part be first well rubbed with a woollen cloth, that the liniment may penetrate more readily, then take a sufficient quantity, and rub the part with it thoroughly, working it well in with the hand, and as fast as the liniment sinks in renew it. This may be repeated until the numbness goes off, and the horse can begin to use his limbs. If the numbness and lameness be chiefly in the hind-parts, in that case the liniment may be also rubbed on the back-bone and loins, from whence the principal nerves that go to the limbs derive their origin, but when the embrocation is rubbed over the loins the cantharides should be omitted. Rubbing the parts often with a hard brush is of use in all such cases, and, therefore, ought never to be neglected

If the head be affected on one side, so as to draw the horse's mouth awry, the forehead, temple, and cheek on that side ought also to be well rubbed and embrocated with the above liniment, and when this is the case, internal medicines ought not to be laid aside. If a vertigo happens, or if the lameness be universally on one side, but not one universal deprivation of sense and motion, as in the Hemiplegia, or dead Palsy, in the first all objects seem to turn round, so that a horse, while any sense remains, with the least use of his limbs, will naturally follow the object of his motions. In such a case all those medicines that have been recommended for the cure of an Apoplexy are also proper, with rowels and external applications. In the latter, when the lameness is altogether on one side, the horse by leaning on the sound side, will also turn round towards the same side, having the use of his limbs on the sound side to support him, but not so freely on the other. But as this may happen without a vertigo, the best remedy is mild purging, with the use of external applications. A mixture of mustard-seed, fresh ground, with camphorated spirits frequently rubbed in upon the diseased limbs, will be of great use, viz. an ounce of mustard-seed to half-a-pint of camphorated spirits, and towards the latter end of the cure opodeldoc may be used with advantage.

If a lethargy happen, which is not unusual in distempers of the head, few evacuations will be required, except occasionally a glyster, with rowels on the neck and under the jaws, and the use of cordials are necessary in all lethargic symptoms, as assafœtida, salt of hartshorn, sal ammoniac, and all other volatiles, but these can only be afforded to horses of some value.

THE EPILEPSY

generally proceeds from the same causes that produce vertigo, apoplexy, and lethargy, to all which it has a near affinity. Sometimes the Epilipsy proceeds from a plethora, or fulness of blood, which is found to be gross and sizy. When this disease happens to old horses, it generally proves incurable, because nature, being languid, gives but little assistance to the operation of medicine, or any other means made use of for their recovery. A horse attacked with Epilepsy reels and staggers, his eyes seem fixed in his head; he has no sense of what he is doing, he stales and dungs insensibly, runs round, and falls suddenly, sometimes immoveable, with his legs stretched out, as if he were dead, except only a very quick motion of the heart and lungs, which occasions his flanks to work violently, and sometimes an involuntary motion and shaking of his limbs. At the going off of the fit, he generally foams at the mouth, the foam is white and dry, like that which comes from a healthy horse when he champs the bit. In order to effect a cure, it is first necessary to open the bowels by clysters, after which the following ball may be given every twelve hours.

Take of Assafœtida . . 2 drachms
Camphor . . 1 drachm
Emetic Tartar . 1 drachm

Liquorice-powder and honey sufficient to make the whole into one ball

RHEUMATISM

This is a disease to which it is most pro-

bable horses would seldom or never be subject in a state of nature; but when the animal has been rendered delicate and tender by being kept in the stable, and warmly cloathed, it is rational to suppose that he may be affected with it upon any sudden or violent change in his mode of living. For although quadrupeds, in a state of nature, lie upon cold and wet ground, without experiencing any inconvenience or injury, still it must be evident, that a horse which has been accustomed to lie upon dry straw, in a warm stable, and also well cloathed with rugs, must be in great danger of catching cold in his limbs, and indeed cases frequently occur, of horses being attacked with locked jaw in consequence of this treatment.

Rheumatism has been commonly divided into two kinds, the acute and the chronic. The first is always attended with a greater or less degree of fever, but the latter may be considered as a mere local affection, and is generally confined to a single limb, or to some particular part of the body. Horses are sometimes attacked with lameness without any visible external cause being discovered, and it also frequently happens that this kind of lameness shifts from one limb to another.

In these cases it is fair to presume that the complaint is rheumatic, especially when the lameness subsides by exercise, and returns again when the animal becomes cool.

Rheumatic lameness may also, in some measure, be distinguished from any other, by the horse's moving the affected limb without bending the joints of it, which is not the case in any other kind of lameness except in the shoulder, or the hip-joint. When the disease attacks the loins, it may be ascertained by the motion of the horse, for in consequence of the extreme pain he feels, and the loss of the action of the muscles in those parts, he loses all flexibility in his back and body, and is obliged to step short with all his legs alike; and another peculiar circumstance is, that the animal never lies down, from the consciousness of being unable to rise again without great pain and difficulty

Bracken says "that the shoulders are often affected, but that the confirmed rheumatism is usually seated in or about the hip-joint, and the adjacent membranes."

The horse goes lame from no visible cause, but after a long continuance of the disease a wasting of the parts may ensue.

The sight and touch must determine the case, distinguishing it from lameness in the foot, the tendon, the hock and stifle, or from the pains occasioned by incipient spavins or curbs. He says it is probable that no method would be so likely to effect a cure as the application of the actual cautery, holes being burnt in rather deep into the muscular parts, near the nervus sciaticus, and the issues kept open so as to keep up a discharge for a considerable time.

At all events when the part affected can be ascertained with any certainty, strong spirituous applications should be resorted to, first beginning by administering a purge; the horse should be kept warmly cloathed, and should have walking exercise twice a day in good weather.

The following embrocation may be used with advantage.

Take—Hog's lard	. .	2 ounces
Camphor	. .	2 drachms
Oil of turpentine	.	6 drachms

Spirits of sal ammoniac . 2 drachms
to be mixed for use.

Let the part affected be well rubbed with the above ointment twice a day.

After the purge which has been recommended has ceased to operate, the following ball may be given every night, for three or four nights,

Sulphur . . . 2 drachms
Assafœtida . . . 2 drachms
Ginger . . . 1 drachm
Soap . . . 2 drachms
mixed into a mass with treacle.

When the complaint, however, has been of long standing, a summer's run at grass is most likely to restore the animal to a state of health and soundness.

Warm bathing has been recommended, but the great difficulty attending the application of it to so large an animal almost precludes the use of it, besides that the great length of time which must elapse before the horse could be rubbed thoroughly dry all over his body, would expose him to the danger of catching a fresh cold, and would in that case be more likely to retard than to accelerate the cure.

Some years ago, a farrier, of the name of Foxall, resident in Moorfields, constructed a set of hot-baths sufficiently capacious for the purpose of receiving the animal entirely. They were in great reputation for a considerable length of time, but ultimately, for some reason or other, were totally laid aside.

ON WORMS.

The existence of these insects in the stomachs and intestines of horses is so general, that very few escape being troubled with them either at one season or another. Hence it would appear that their existence is almost incorporated with that of the horse, who seems to be the natural medium for their propagation. Mr. Bracey Clarke, who has written a very excellent treatise on this subject, is indeed of opinion that the stimulus arising from worms in the stomachs of horses is useful and beneficial to the animal, and is probably the means of preventing other diseases.

Worms with which horses are troubled are of different sorts. The most common kinds are the following, viz. bots and the ascarides. The first of these, the bot, is generally of a brown colour. It is shaped like a ship's buoy, about half an inch in length, and the same in circumference round its thickest part. It is generally found sticking to the insensible part of the stomach, and very frequently in great numbers, and close together like a bunch of grapes

They adhere with great firmness, and it requires some degree of force to remove them from their hold. They are furnished with two sharp penetrating spiculæ from one end of their bodies, which pierce into the

skin, and act as a pair of forceps, and as the surface of the stomach where they have taken hold inflames and ulcerates, they pierce still deeper, for the purpose of taking fresh hold, until it sometimes occurs that holes are made in this way quite through the stomach.

According to the accurate and scientific experiments of Mr. Bracey Clarke, the old notion that these worms were generated in the anus, and passed from thence through the intestines into the stomach, has been proved to be both absurd and erroneous. And indeed it must appear extraordinary, on a moment's reflection, that the insect should be able to make its way in opposition to the peristaltic motion of the intestines, as well as to the dung accumulated therein. The actual mode of propagation, as Mr. Clarke has described it, is as follows. The female fly being properly impregnated, flies about the fore parts of the horse, and deposits its eggs on the fore-legs and some part of the shoulders. These eggs are very visible, in the form of little yellow knits, upon horses that have been at grass during the summer. Whenever the horse bites his legs from itching, or any other cause, some of these eggs enter the mouth and pass into the stomach along with the saliva, where they are hatched and become the bot, and after remaining in the stomach until the following summer, they quit the body of the horse, by dropping from the anus, and at a certain distance of time are converted into the fly, which again deposits its eggs and with the same result as before.

The small worms, called the ascarides, generally inhabit the rectum. They are formed like an eel, and very much resemble those that are found in the human body They are generally white, and sometimes of a reddish cast. They are very troublesome, and expose horses to gripes and other irritating actions in the intestines. As to the cause of these worms, it is imagined, that, as is the case with the human subject, some constitutions are more disposed to breed them than others. Some have attributed them to foul feeding, which produces crudities and slimy indigested matter in the bowels, especially in horses that have been pampered for sale, forming a proper nidus for worms. This, perhaps, may, in some measure, be the case, but it is probable that the principal cause is a want of energy in the functions of the stomach and intestines, as worms are seldom found in animals that are perfectly healthy in these respects.

Gibson gives the following account upon this subject. He says, "The signs of worms in horses are various, according to their different kinds. The bots that many horses are troubled with are found sticking to the rectum, and are often thrust out with the dung, along with a yellowish coloured matter like melted sulphur.

"They are apt to make a horse restless and uneasy, and to rub his breech against a post. The season of their appearing is usually in the months of May or June, after which they are seldom to be seen, and rarely continue in any one horse above a fortnight or three weeks. Those that take possession of the membranous part of the stomach are more irritating and dangerous in causing convulsions, and are seldom discovered by any previous signs before they bring a horse into violent agony." The teretes, or earth-worms, give little disturbance to a horse,

and would hardly be discovered, but for their being seen now and then to come away with the dung. Frequently horses void one or two, and no more, and sometimes they will void pretty large quantities of the young brood, not much larger than the ascarides, only of a red colour, and not white as the latter generally are.

They are most common in autumn, or the beginning of winter, though a horse will now and then void one or two of these at other times of the year.

The ascarides, or small needle-like worms, are very troublesome to horses, breed at all times of the year, and often when one breed is destroyed another succeeds. Although they are not dangerous, yet when a horse is pestered in this way, though he will work tolerably well, his hair stares as if he was sickly, and nothing that he eats makes him thrive. It is evident also that worms sometimes occasion pain, for a horse that is troubled with them often strikes his belly with his hind foot, which he always does when he is griped, but to a greater degree.

He neither lies down nor rolls as in the gripes, but merely shews some degree of uneasiness, and generally recovers in a very short time, and begins to feed.

But the surest sign of worms is when they are voided with the dung, and also the yellow marks about the fundament and the root of the tail, which always are to be seen in horses that are troubled with those insects.

Various remedies have been proposed by different authors for the removal of these troublesome inmates. Gibson says, "a horse may be relieved without much expense or trouble, only by giving him a spoonful of savin, once or twice every day, in oats or bran moistened, and if three or four cloves of chopped garlic be mixed with the savin it will do better, for garlic is of great service in these complaints. Horses that are troubled with bots," he says, "ought to be purged with calomel and aloetic purges before the weather grows too hot, and if they be kept to a clean diet after this, it will be a great chance if ever they are troubled with them any more. As the bots generally happen about the grass season, those horses that are turned out to grass often get rid of them there, by the first fortnight's purging, and those who have the convenience of a good pasture for their horses need not be very solicitous about giving them medicines."

A recent author, Mr. Denny, recommends the following prescription, viz.

Take of—Calomel . . 1 drachm
Aniseeds, in powder half-an-ounce
Treacle enough to make a ball.

This is to be given in the evening, and the next morning the following is to be administered:

Take of—Soccotrine Aloes . 8 drachms
Ginger . . . 2 drachms
Treacle enough to make a ball.

The foregoing bolus and purgative ball is ordered to be repeated, after an interval of nine days, until the horse has taken three doses. Then the following powder is advised daily for about a month. This process does not require any change of diet or involve any hazard from the effects of cold.

Take of Ethiop's mineral
Crude antimony prepared
Aniseeds, in powder, half-an-ounce,
mix them together.

The treatment of the horse during this course of worm-medicine, is the same as in the usual practice of administering purges. "Some prefer," he says, "giving Barbadoes aloes for the removal of worms, thinking it more efficacious than the soccotrine, at the same time it exposes a horse more to gripes and other dangerous attacks, unless it be managed with great care." The following Gibson recommends as a cheap purge of this kind.

Take of—Barbadoes aloes . 1 ounce
Salt of tartar . . 2 drachms
Ginger . . . 1½ drachm
Oil of amber . a tea-spoon full
Syrup of buckthorn sufficient to make a ball.

The foregoing are the remedies proposed by different authors, nevertheless it is a certain fact, that no medicine has the effect either of destroying or bringing away the bots before that period of the year at which they quit the horse spontaneously, for the purpose of passing into another stage of existence, that of the fly. What it is that renders them proof against the action of the strongest poisons it is not easy to ascertain, but it most probably arises from their being defended by a kind of fur, or spiculated hairs, which prevents any thing from entering into contact with the surface of the body. In the months of June and July these bots may be seen sticking to the fundament preparatory to their being dropped, and this circumstance gave rise to the idea that they entered the stomach at the anus, and by passing from thence through the intestines.

The kind of worms called ascarides, sometimes come away in great numbers with the help of a purge, and the animal is, for a time, perfectly freed from these troublesome insects. But in many horses there seems to be a natural propensity to generate worms, and this is undoubtedly increased by bad feeding and a want of proper attention as to the regularity of diet, &c.

It sometimes happens that the simple irritation of the intestines only will bring on a natural purging, so as to prove the means of ejecting considerable quantities of these small worms, accompanied with much slime and mucus. These ascarides are the cause of great inconvenience to the horse, for they not only make him look thin and emaciated, but also weaken him to such a degree as to render him unfit for any labour whatever.

In this state the coat generally stares, and the skin sticks fast to the ribs, and the animal sweats upon using any exertion, however short the continuance of it. Upon the whole, it would seem that these worms proceed, in a great measure, from a vitiated appetite and a weak digestion, which renders them the more difficult to be removed.

Calomel seems to be the favourite remedy with almost all authors that have written on the subject, but it is a very dangerous medicine except it be given with great caution and in moderation.

Numerous instances have come within the knowledge of the author of this work, of horses having been killed by mercurial purges made up from recipes of Taplin and other writers, and these unfortunate events have constantly deterred him from prescribing calomel in large doses, especially for horses that were not immediately under his own care and observation.

Gibson, however, recommends mercury in

the following form, and which certainly is not so likely to gripe a horse as calomel.

Take of—Quicksilver . . 2 drachms
Venice turpentine half-an-ounce,

Rub the quicksilver with the turpentine in a mortar till no particle of the former appear, then add

Oil of savin, thirty or forty drops
Soccotrine aloes, in powder, half-an-ounce
Ginger . . . . 1 drachm
Syrup of buckthorn enough to make it up in a ball.

Let one of these mercurial purges be given in the foregoing quantity, one in six or eight days, with the usual precautions of braumashes and water with the chill off. It will work mildly and with little or no griping or sickness.

Gibson also recommends another mercurial purge, composed of the following ingredients, viz.

Diagridium
Calœ of antimony each . 2 drachms
Soccotrine aloes . . 6 drachms
Ginger grated . . 1 drachm
Oil of savin, thirty or forty drops.
Syrup of buckthorn enough to form a ball.

When a horse has gone through a course of these mercurial purges, he advises the following drink to be given twice or thrice a week, viz.

Rue
Camomile flowers
Horehound, of each a handful,
Liquorice-root . 1 ounce.

Boil these in a quart of soft water, about fifteen minutes, in a covered vessel, and keep it covered till cold, then strain it through piece of coarse canvass, and give it in the morning on an empty stomach.

Some have supposed that powdered tin was a specific against worms. The way in which it is prepared is by melting down any quantity of it in a crucible, pouring it hot into a wooden bowl, and rolling it round till part of it is turned to a greyish powder. Then melting again the remaining part, and rolling it again, and continuing this operation till all that can be reduced to powder is obtained from it. This may be given to the quantity of two ounces at a dose, mixed up into a ball with liquorice-powder and treacle. If this metal possesses any medicinal virtue in the destroying of worms, it must be from the small portion of arsenic which it generally contains, and upon this principle it would be a more certain mode of administering that powerful drug to give it in its pure state, combining it with other substances calculated to palliate any violent effects that might sometimes arise from its use. The quantity might be as follows :

Arsenic . . . 10 grains
Opium . . . 1 scruple
Liquorice-powder and syrup of buckthorn enough to make one ball.

This may be given every morning fasting, for six mornings successively, except it is found to occasion any inconvenience to the animal, such as griping, extreme nausea, &c. At the expiration of the six days a purge may be given composed of

Barbadoes aloes . . .	8 drachms
Castile soap . . .	1 ounce
Ginger	1 drachm

in a ball with syrup.

Antimonial preparations are useful in destroying the ascarides, particular emetic tartar. Sulphur is also a good medicine. It may be given to the quantity of an ounce, night and morning.

Ethiop's mineral also, in doses of half an ounce, may be administered with advantage, every fourth day for two or three weeks. All these medicines, however, require an aloetic purge at the conclusion. When worms appear to have been produced by high feeding and a bad digestion, together with want of air and exercise, or from unwholesome food, it will require great attention to obviate those irregularities, so that the medicines may not be impeded in their effect.

A run at grass certainly contributes to the removal of the ascarides from the intestines; but, at the same time, it exposes the horse more to the generation of bots, from the eggs that are deposited by the fly on the fore legs and shoulders of the animal, and which are seldom deposited on horses that are kept in the stable, at least they are rubbed off by the curry-comb and brush before the horse has time to take any of them in at his mouth.

Worms are not confined to the stomach and intestines of horses only, as instances are upon record, and well-authenticated, of their being found in the blood-vessels, and even in the aqueous humour of the eye. This last phenomenon is said to be no uncommon occurrence amongst horses in the East Indies. The author cannot conclude this chapter without again adverting to Mr. Bracey Clark's excellent treatise on the bots which every owner of horses would be gratified in perusing.

ON TRAINING FOR THE COURSE AND THE CHASE.

THERE is scarcely any part of the management of horses that requires more judgment and nicer discrimination than that which relates to the present subject. Certain received opinions, and deep-rooted prejudices, have long held an arbitrary sway in matters of this nature, and whoever is bold enough to dispute the soundness of those opinions must expect nothing but ridicule for his pains. The plea of experience is constantly thrown in his teeth, and the ancient charter of tormenting and destroying horses is maintained with as much pertinacity as magna charta is by every true Briton and friend to his country.

But the validity of experience must in all cases depend principally on the variety of systems that have been put in practice, and on a fair and impartial comparison drawn between them. For the experience of a set of men who have never trod but in the same

beaten track cannot be worth much. It may, indeed, sometimes point out to them that they are wrong, but it can never shew them how to go right without a thorough knowledge of radical principles. A man may for fifty years of his life see the sun rise in the morning and set again at night, but although he knows the certainty of this fact from experience, still he may remain to the day of his death as ignorant of the nature and course of that celestial body, as he was at the first hour of his existence. Precisely of this quality is that sort of experience which is held up as the basis of all stable knowledge, and from which it is considered a kind of heresy to dissent.

It is certain that there are some people who deem the most violent and preposterous mode of treatment as perfectly safe and harmless, merely because the poor animal that is doomed to undergo it, happens to survive it. A simple perusal, however, of most of the stud-books of men upon the turf, will afford ample evidence of the danger of the practice, one instance alone having come under the observation of the author of the present work, where, in a list of the produce of a particular brood-mare, no fewer than three out of eleven had died in training.

Accidents of this description, however, are so far from convincing the owners of race-horses of the folly and temerity of such a system, that they appear to submit to them as mere matters of course, and are ready to attribute the fatal result to any thing but the true cause.

This may be called experience with a vengeance, and it seems to have pretty much the same effect as the spectacle of an execution has upon the fellow who is detected in picking pockets under the very gallows.

If every horse's constitution was precisely the same, the whole business of training might be restricted to the narrow compass in which it is at present comprised. But whilst there is so much and such evident variety, the mischief which accrues from adhering to one general course, must be, one would suppose, sufficient to induce a change of practice. It is admitted on all hands that no man would ask another to repair or regulate a piece of machinery except the person so employed was fully acquainted with its constituent principles. But there seems to be an extraordinary latitude allowed in every thing that relates to horses, and every stable-boy who can ride and clean a horse is supposed to be perfectly acquainted with the animal œconomy and the cause and cure of diseases, without possessing one particle of knowledge on the subject of anatomy, or of the nature and effect of drugs.

He acquires a certain train of reasoning from his elders, and talks in the same profound style about humours, &c. and in due time bleeds, purges, and sweats without mercy every horse that happens to fall under his hands. That many a good horse has died under such an ordeal, is an indisputable fact, nor is it less certain that many a good racer has been beat solely from the bad effects of the treatment before mentioned.

That such a system as the one alluded to is not absolutely necessary to qualify a horse for the business of the turf, has been proved at more periods than one. The following instance may serve as an illustration of this fact. About seventy or eighty years ago, a

sporting man, Sir Robert Fagg, (of the county of Sussex) was in possession of the best blood on the turf at that day. But the super-excellence of his horses was such, that he found it very difficult to make any matches without giving very great odds in weight.

He therefore kept his horses in a very rough state, without clothing, simply feeding them with the best hay and oats, and giving them strong exercise every day. In this state they were travelled to the different races, and sometimes to increase their disguise, a pair of panniers were put upon their backs. This trick of course did not last long, but it enabled him to make some advantageous matches, by which he won immense sums.

As it may not be unentertaining to the reader to give him a specimen of the early system of training, the following extract from a very old author on equestrian matters has been selected.

"*The ordering a horse for a match or plate.*—When you have either matched your horse, or design him to run for a plate, you should consider that you ought to reserve a month at least, to draw his body perfectly clean, and to refine his wind to that degree of perfection that is capable of being attained by art. In the first place, take an exact view of the state of his body, both outwardly and inwardly, as whether he be low or high in flesh, or whether he be dull and heavy when abroad, and if this has been caused by too hard riding, give him an ounce of diapente in a pint of good old malaga sack, which will both cleanse his body and revive his spirits. Then for the first week feed him continually with bread, oats, and split beans, giving him sometimes the one and sometimes the other, according to what he likes best, always leaving some in his locker to eat at leisure while you are absent, and when you return at your hours of feeding, take away what is left, and give him fresh till you have made him wanton and playful. For this purpose, take notice, that though you ride him every morning and evening, on airing, and every other day on hunting, *yet you are not to sweat him,* or put him to any violent labour, the design of the week's ordering being to keep him in wind and breath and to prevent pursiveness. You must now make a finer bread than before, as follows; Take two pecks of beans, and a peck of wheat, and let them be ground together, but not too fine, to prevent too much bran in the bread, and dress one peck of the meal through a fine range, and knead it up with new ale yeast, and the whites of a dozen new-laid eggs, and bake this in a loaf by itself; but dress the rest of the meal through a bolter, and knead it only with ale and yeast, and use it in all other points as the former; the peck-loaf is to be given the horse when you set him, and the other at ordinary times. This bread very much increases the strength, courage, and wind of your horse. If your horse be brisk and lively, when you lead him out of the stable, he will leap and play about you; then you must not only omit giving him the sack and diapente, but any other dose whatever; for it will rather prey upon the strength of his body, and by that means weaken him. If your horse be engaged in a hunting-match you must sweat him; you must sweat him twice this week, not by hunting him after the hare, but by train-scent, since the former on this occasion may prove deceitful, for though the hounds should be very swift, yet the scent

being cold, the hounds will very often be at fault, and by that means the horse will have many sobs, so that when he comes to run train-scents in earnest, he will expect ease for his wind. Therefore lead your train-scent with a dead cat, over such grounds as you are likely to run on, and which best agrees with the humour of your horse, and also choose the fleetest hounds you can get, and they will keep your horse up to the height of his speed. As to the number of train-scents which you should ride at a time, that is to be ordered according to the match you are to run, or rather according to the strength of your horse and his ability for performing his heats; for if you labour him beyond his strength, it will take him off his speed, weaken his limbs, and daunt his spirit. If you give him too little exercise, it will render him liable to be pursive and full of humours, and incline him to a habit of laziness, so that when he comes to be put to labour beyond his usual rate, he will grow restive and settle like a jade. But so far may be said by way of direction, that if you are to run eight train-scents, and the straight course more or less, you are not to put him to such severe labour above twice in the whole month's keeping. And if it be in the first fortnight, it will be the better, for then he will have a whole fortnight to recover his strength again; and as for his labour in the last fortnight, let it be proportionate to his strength and wind, as sometimes half his task, and then three quarters of it. Only observe, that the last trial you make in the first fortnight be a train-scent more than your match, for by that means you will find what he is able to do. And as to the proportion of his exercise twice a week, that is sufficient to keep him in breath, and yet will not injure or diminish his vigour.

"But if your hunting-match be to run fewer trains, then you may put him to his whole task the oftener, according as you find him in condition, only observe that you are not to strain him for ten days at least, before he runs his match, that he may be led into the field in perfect health and vigour.

"If you design your horse for a plate, let him take his heats according to this direction, only let him be on the place, that he may be acquainted with the ground; and as for the hounds you may omit them, as not being tied to their speed, but that of your adversary's horse.

"But as to the number of heats let them be according to what the articles exact, only observe, that, as to the sharpness of them, they must be regulated according to the strength and goodness of his wind. And when you heat him, provide some horses upon the course to run against him; this will quicken his spirit, and encourage him, when he finds he can outrun them at his pleasure. And here too you must observe the same rule, not to give the horse a *bloody* heat for ten days, or a fortnight, before the plate is to be run for; and let the last heat you give him before the day of trial be in all his cloths, and just skelp it over, which will make him run the next time the more vigorously, when he shall be stript naked, and feel the cold air pierce him. During this month, and on his resting days, and after his sweats on hunting-days (if there be any occasion for sweating him) you must observe the same rules that have been given for the first week of the third fortnight's keeping, only you must omit all scourings but rye-bread and mashes, since

your horse, being in so perfect a state of body, has no need of any, except you shall judge there is occasion, and that the horse proves thirsty about eight or nine o'clock, you may give him the following julap, to cool and quench his thirst, viz.

"Take of—Barley-water . . 2 quarts
Syrup of violets . 3 ounces
Syrup of lemon . 2 ounces.

"Having mixed these together give them to the horse to drink, and if he refuse, place it so that he may not throw it down, and let it stand by him all night. During the last fortnight, you must give him dried oats that have been hulled by beating, and having put the whites of a dozen, or twenty eggs, to half a strike of oats, stir them together and let them lie all night to soak, and spread them abroad in the sun the next morning till they are as dry as they were at first, and so give them to your horse; and when these are spent, prepare another quantity after the same manner. This food is light of digestion and very good for his wind. You must hull his beans also, but not give them to him so often, if he will eat his oats without them; and as for his bread, make that of three parts wheat to one of beans, and order it as before directed. But if you find your horse inclinable to be costive, then give him oats washed in two or three whites of eggs and ale beaten together, to cool his body and keep it moist. Give him no mash for the last week, only the barley-water as before directed, but let him have his fill of hay, till the day before he is to run his match, when you must give it him more sparingly, that he may have time to digest what he has eaten, and then you may muzzle him with a cavesson; and be sure on that day, and not till the morning he is let out, to feed him as much as possible, for such a day's labour will require something to maintain his strength. Therefore, in the morning before he is let out, give him a toast or two of white-bread steeped in sack, which will invigorate him, and when you have done, lead him out into the field. But if you are to run for a plate, which commonly is not till three o'clock in the afternoon, then by all means have him out early in the morning to air, that he may empty his body; and when he is come in from airing, feed him with toasts and sack, considering that as too much feeding would endanger his wind, so too long fasting would cause faintness.

"When he has eaten what you have thought fit to give him, put on his cavesson, and having afterwards well chafed his legs with hog's lard and brandy warmed together, shake up his litter, and shut up the stable close, and take care that there is no noise near him, and let him rest till the hour come that he is to go out into the field."

The foregoing detail has been given merely as a specimen of early training, without any intention of recommending it. Absurd as it is in many points, still some of our modern practice is not less so, nor is it likely to be otherwise until reason and common sense shall overcome ignorance and prejudice.

The first proceeding in training a horse or getting him into condition, is generally to purge him; and this course, if regulated by moderation and discretion, is not perhaps very objectionable, especially with horses that are extremely fat. In the old recipes for purging-balls there was such a mixture of

drugs as to render it almost impossible to anticipate the probable effects of the medicine when given.

This folly has been in some measure exploded, although the dangerous practice of giving a large dose of calomel still exists, and still continues to occasion the death of numbers of horses. Aloes are well known to be a safe and certain purgative, and if the action of the intestines is increased so as to unload them thoroughly of their contents, and to diminish the quantity of superabundant fluids in the body, by absorbing them and carrying them off by stool, the purpose is as fully answered by using aloes alone as by combining them with any other drug whatsoever. For, in fact, there is no specific quality in any purgative whatever, its action being merely to increase the secretion of the bile, which flowing into the intestines in a larger quantity than usual, irritates and excites them to an increased action in their peristaltic motion, and thereby facilitates the discharge of their contents.

Therefore, as purging is produced by giving such medicines as are found, by their stimulating properties, to excite the coats of the stomach and intestines, and increase their action, so as to cause them to throw off their contents by evacuation, it would appear that the different kinds of purging medicines differ only in degrees of strength, and that they operate no otherwise upon the different humours of the body than by stimulating the first passages more or less, and thereby causing a greater evacuation by stool. So that, in fact, the operation of purging only lessens the quantity of the fluids contained in the body, without making any alteration in the natural properties of that which is left behind.

This, therefore, shews the folly of expecting to drain off any particular humour, or to attack any particular part by purging, because its action is upon the whole system at large. Thus, in a horse that has swelled legs or greasy heels, a purge does not act separately on the fluids contained in the legs, but simply pumps them up into the body, as it were, by absorption, from whence they are carried off by stool, and the legs are relieved. Whenever a horse is out of order, he is commonly said to be foul in his body and full of humours, by which it is meant to imply that the animal is in a bad habit of body.

But the mere expression of humours, is by no means a proper term, nor can it be said to convey a just meaning on the subject, because the body of an animal in its healthy state is full of humours. Thus there is a humour that lubricates the coats of the intestines, a humour in the chamber of the eye, a humour to moisten the surface of the nose, and another to moisten the surface of the skin.

These may all be considered as humours, without their bearing any relation to disease whatever. Bracken makes a very sensible and humourous remark upon this subject. He says "This fondness for purging seems very much to quadrate with the outward senses, and makes the ignorant part of mankind (whose heads are fuller of humours than their horses) imagine that purging medicines carry off the offending matter in most disorders, never considering that in proportion as any one evacuation is heightened or increased, most, or all, of the other natural evacuations are diminished."

Some people have a practice of riding their horses very hard before they give them purging medicines, with a view, as they term it, *to stir up the humours,* that when they are supposed to be afloat they may the more readily be carried off by purging.

This practice can have no good effect whatever, except its tending to empty the intestines of hard dung preparatory to giving the medicine.

But whilst it has this effect, it also has another which is not so desirable. For by increasing the circulation of the blood, the intestines are heated and rendered more irritable, and consequently more liable to griping and inflammation than they would be under other circumstances.

It is no less improper to ride a horse about much during the operation of a purge, for although this is generally done with the view of facilitating the operation, yet, if carried to an extreme, it has sometimes the effect of exciting the action of perspiration, or increasing the discharge of urine, either of which lessen the operation of the purge, by diverting its action to another channel, and thereby defeating the original intention for which the purge was given, besides that persons who are ignorant of this bad result of too much exercise, during the operation of a purge, are apt to conclude, from the diminished evacuation of dung which takes place in consequence of it, that the dose was not strong enough, and thence give a stronger dose the next time, to the great hazard of the horse's existence.

Purges operate very differently upon different horses. Some undergo them without the least inconvenience whatever, and neither refuse food nor water during the whole process, whilst others become extremely languid, and will neither eat nor drink for several hours. With horses of this last description it is extremely difficult to cause the purge to operate kindly, on account of their not drinking. In this case it is advisable to drench them occasionally with a considerable quantity of warm thin gruel, and also to clear the rectum of any hardened dung by back-raking. There are some horses, on the other hand, that will take exceeding large doses without any effect whatever, except increasing the discharge of urine.

It is, however, a very dangerous practice to go on increasing the dose, as it sometimes happens that a sudden change takes place in the disposition of the intestines, and a violent and immoderate purging ensues, which cannot be stopped by any means whatever.

The best course to be taken with horses that are difficult to be purged, is to divide the dose into small quantities and to give them in the following manner, viz. having first prepared the horse, by mashes, the day previous, give him four drachms of Barbadoes aloes made up with half an ounce of castile soap, in the morning fasting—repeat the same quantity on the same night, and if he has not purged on the following morning, nor appears to be at all sick or affected by the medicine, give a third dose of the same quantity, and it will generally be found to answer when a larger quantity given all at once has been known to fail.

The horizontal position of a horse's body is less favourable to the speedy operation of purging medicines than the upright posture of the human frame, hence it generally requires twenty-four hours to elapse before they begin to operate, although they some-

times commence in a smaller length of time.

But much will depend on the natural constitution of the horse, and whenever the usual dose does not take the effect within twenty-four or thirty hours, the best plan on a future occasion is to divide the dose into small quantities, and give one portion of it at intervals of twelve hours, as before recommended, until the animal begins to purge.

Strict attention should be paid in giving the ball, to be certain that the horse swallows it, as it sometimes happens that old horses will hold it in their mouths for a considerable length of time, and afterwards cough it up again.

It should also be ascertained that he swallows the whole of it, as no certain conclusion as to the efficacy of the medicine can be formed without attending closely to these circumstances.

In giving the ball it is usual to take hold of the horse's tongue with the left-hand, and to draw it out between the grinders, so that the animal cannot bite the operator's hand without biting his own tongue. But this is done very frequently in so rough and brutal a manner as to give the horse great pain, and to render him very shy and averse to taking a ball at any future period.

The common and injudicious mode of holding the tongue is, by drawing it out sideways out of the mouth to a great extent, and to pull it with considerable force, without having any check on the hand whatever, so that if the animal snatches back his head, there is great danger of his tongue being pulled out by the roots, or else of being materially injured: and this occurrence has been known not unfrequently to take place.

The proper and safe mode is to hold the tongue with the three first fingers of the left hand, and to place the little finger of the same hand within the lower jaw, and by pressing against the inside of it, the hand is confined to the jaw, and of course follows the motion of the head in every direction, and prevents the probability of any accident happening to the tongue from the causes before mentioned.

The prejudices of most people who have to train horses for the field or the chase, are so strong in favour of purging that they never believe it to be possible that a horse can be in a proper state for either of those purposes, except he has first had three strong purges given to him; and there seems to be some magic attached to the number three, for the animal is always condemned to swallow a third dose, even though the two first may have operated within an inch of his life, and have left him in such a state of exhaustion and debility as would require a considerable time to overcome. Undoubtedly there are many cases where purging is indispensibly necessary to get a horse into condition; but, on the other hand, it is equally true that there are thousands of horses which undergo constant and severe labour without any preparation of the kind whatever, and there are no racers nor hunters in such high condition as mail-coach horses, that are well fed and kept in cool stables, and that travel a certain number of miles regularly every day, and these horses are seldom or never purged, except in cases of worms or of greasy heels.

It seems to be a law in the animal œco-

nomy, that when the functions of any part have been excited to an excess, it is always followed with a proportionate degree of torpor and inaction. Hence after a violent purge has ceased to operate, the secretion of bile, and the natural fluids which lubricate the intestines, are diminished in quantity, and the animal thereby becomes more costive than he was previously to taking the purge.

In this state of body he is again liable to experience all the bad effects of costiveness, such as attacks on the eyes or swelling of the extremities.

Dr. Bracken, who was a great sportsman and a great enemy to this indiscriminate practice of purging, cites a case of a mare of his own which he had run for six years, having in that time given her only two purges. He also states that she had no medicine whatever during that period, except about the bigness of a pigeon's egg, of cordial ball occasionally, and that she performed as well as most of her neighbours, having won eight plates out of nine every year.

Mr. Clarke, of Edinburgh, also makes some very judicious observations on the abuse of purging medicines. Speaking on this subject, he says, "It may be of use to the young practioner to explain what is meant by the phrase of the *humours falling down;* but, at the same time, I must inform him, that this phrase is so generally in use, that when a horse's eyes are affected the humours are said to fall down into them, although they are situated nearly in the most elevated parts of the body But to explain their falling down to the extremities, I shall take a case that frequently occurs. When a horse that is in the highest state of health, but is too fat and full of juices, and accustomed to stand much at rest, is suddenly put to violent or long continued exercise, his legs will be apt to swell soon after; they will perhaps continue in that state for some time; they may at last break out in running sores about his heels, and form cracks, &c.; when in this situation it is said that the humours are fallen down into the legs. Here a question naturally occurs, where were those humours before the horse underwent the severe exercise, and how came they to fall down on this occasion only? Unless a horse has been gradually habituated to exercise, previous to the undergoing that which is violent or long continued, his vessels will be too full of fluids, and these, especially the finer capillaries, from the force and rapidity of the circulation during the exercise, will admit the grosser fluids that do not usually circulate in them. They are likewise liable in these cases to be ruptured, hence the fluids they contain escape into the cellular membrane, where they stagnate, and being then out of the course of circulation, occasion a swelling. If this happens in the legs, as the most dependent part of the body, the humours are then said to have fallen down, the swelling causes a distension of the skin, the cuticular pores are then enlarged, and admit through them the thinner parts of the fluids to the outward surface of the skin, which, on being exposed to the external air, are then changed in their quality, and acquire, according to circumstances, either a clammy or greasy nature, or else a sharp fetid ichorous quality that erodes the skin, and by lodging there forms small ulcers.

It ought always to be remembered, that great evacuations weaken an animal body, and if they are repeated frequently and too

close upon one another without allowing a proper interval between each, or if they are carried to excess, as is sometimes the case, the weakness in the animal system is thereby increased, the powers of life are overcome, and death follows of course." Farther upon this subject Mr. Clark says, "I do not approve of repeating purge after purge, merely because this or that horse is to run, or hunt, without first considering whether the animal be fat or lean, or whether he has been kept at hard meat with proper exercise, or whether he has run a considerable time, or late in the season at grass. All these, and several other circumstances necessary to be attended to, ought to be duly weighed and maturely considered before any purging medicines are administered; for example, if a horse has run long at grass, and is of a plethoric and full habit of body, evacuations by purging, and diuretic medicines, to a certain degree, are necessary, together with length of time, good feeding, and regular exercise, to bring his body into that proper habit to enable him to perform with freedom such active exercises. But if a horse is of a lean, low, or dry habit of body, whether it may proceed from the want of proper food, from fatigue, or any other cause, can it be proper to reduce him still lower by repeated evacuations of any kind? There is such an inconsistency in this practice, that it would not even deserve to be noticed, were it not too much practised every day, for, with some people, it is no matter of consideration with them what state of body a horse may be in, that is, whether he be of a fat and full, or lean and dry habit of body; still he is said to be full of humours, and which must be purged off before he is fit for running or hunting.

Horses in the latter situation require only good feeding and regular exercise, to strengthen and improve their constitutions, which cannot fail of taking place if the viscera are sound, and the horse otherwise in a healthy state. And even although a horse should be inclined to the full, or what is called a plethoric habit, yet from the use of diuretic medicines, which are commonly given on those occasions, together with regular airings and proper exercise, good feeding, dressing, &c. he may be brought into that proper habit of body which will enable him to perform the most violent labour with the greatest ease to himself and without any bad consequences.

If those horses that are intended for hunting, were only allowed the spring grass, and taken up about the middle, or towards the latter end of July, before the grass becomes too rank, although it may be somewhat inconvenient to have them in the stable at that season of the year, yet the owner would find his account in it.

The allowance of corn, at this period, should be but small for some little time, but it might be increased, together with the exercise, as the hunting season approaches. Running-horses might be treated in the same manner, according to the season in which they are to run, allowing both a greater length of time in the habitual practice of these exercises, together with proper feeding, dressing, &c. This treatment, together with the use of those alterative and diuretic medicines which are usually given on those occasions, would render horses much stronger and fitter for those active exercises without wearing out their constitutions by the repeated use of purging medicines. The sub-

stitutes which may be used for purging or emptying the alimentary canal, may be distinguished into two kinds; the lenient, which open the body gently, and the drastic, which purge more briskly. The lenient ought always to be preferred, when there appears any unusual commotion in the vascular system, which may easily be known by the quickness of the pulse, &c. for although purging medicines increase the motion of the blood, by drawing off a considerable quantity of the animal fluids by stool; they likewise clear the intestines of sharp stimulating matter, or worms, which occasion an unusual degree of irritation in the system; they likewise may be given with different intentions as circumstances may require, in small doses, to keep the body open, and prevent an accumulation of dung in the intestines which happens in diseases. In cases of frequent returns of the gripes, or colic, but not during the fit, lest the intestines should then be inflamed, they should therefore be given in the intervals, in order to prevent the return of the complaint.

But in cases where it is thought necessary to clear the intestines thoroughly in strong robust horses, the drastic purges may be given, provided there is no great commotion in the circulation of the blood at the time. Purging medicines are of great service where the intestines appear to be loaded with viscid or thick slime, or when it appears, by long continued costiveness, that the peristaltic motion of the intestines is in some degree suspended. In gross habits, especially where there is any tendency to swellings in the legs, attended with running sores, &c.; in dropsical swellings in any part of the body, in diseases of the head, or in defluxions of the eyes; in rheumatic lameness, when the pains seem to move from one limb to another; in the jaundice; in obstinate coughs, especially when the horse is of a full habit of body; in most cutaneons diseases, or when a number of small eruptions, or lumps, arise in the skin, and suddenly disappear again, or when the lumps discharge a sharp fluid of an ichorous quality; in plethoric or full habits, when the horse is intended for violent or active exercises, as racing, hunting, &c.; in cases where it is judged necessary to lessen the general mass of fluids, or to divert them from flowing to any particular spot in too great a quantity, as in inflammation of the lungs; in this last case liquid purges are the most proper, as they operate more expeditiously. In very delicate constitutions, Epsom salts should constitute the chief ingredients; they are likewise most proper in cases of want of appetite; no doubt other cases may occur where purging medicines may be necessary, but these must depend on the discretion and judgment of the prescriber.

On the other hand, it will be prudent to avoid giving purging medicines during extreme cold weather, likewise in all feverish complaints, when the pulse beats strong and quick, till such time as these symptoms are considerably abated.

In all cases of extreme weakness, whether arising from fatigue, or long continued diseases; in all lean dry habits, unless there is reason to apprehend it proceeds from worms; in cases of very obstinate costiveness, till such times as that complaint is, in some degree, removed by clysters, soft feeding, &c. In cases where a horse labours under any violent acute complaint, in diarrhœa, or looseness. Aloetic purges, or those in which aloes

enter into the composition, are to be avoided likewise in severe colics, or griping pains; although liquid purges that are quicker in their operation, and less irritating, may be given with safety in the intervals, when it is observed that horses are subject to frequent attacks of this complaint. Previous to the giving of purging medicines to horses, especially to those that have been kept on hard meat, it will be prudent to keep them from all violent exercise for some time before the purge is given. If they are fat, and of a full habit, it will be necessary to draw some blood, to lower their feeding, and to give them that which is soft and relaxing, as boiled barley, mashes of bran, malt, &c. When horses are to be purged at grass, no preparation is necessary, farther than in plethoric or full habits, to treat them as above, observing, at the same time, that they be not costive, as this frequently happens, although feeding on grass; in this case they are to be taken into the stable, and treated as if they had been on hard feeding.

In giving purging medicines to horses, it will always be most prudent to begin at first by giving mild lenient purges, in order to find out the strength of the constitution, as some horses that are to all appearance very strong and robust, are sometimes easier purged than those of a more delicate make, and it frequently happens that the same horse is easier purged at one time than at another, according to the state of the stomach and intestines at the time the purge is given.

Mild purges, therefore, are much safer at all times, and of more benefit to the constitution, than those that are too strong, for the latter cause too great an irritation of the stomach and intestines, whence follow griping pains, great sickness, &c. and sometimes inflammation of the bowels, they likewise occasion a superpurgation, by which the intestines are so much weakened that they never afterwards recover their former tone, and thence follow loss of appetite, general weakness, and, perhaps, an habitual diarrhœa or looseness.

Many of the drugs formerly used in purging horses, such as jalap, rhubarb, and bitter apple, have been since proved by experiment to have but little or no effect. Hence the absurdity of compounding purging-balls of a long list of ingredients, when, in fact, it is known that nothing but aloes can be depended upon with any certainty of success.

The prescriptions of some modern writers shew that these facts were unknown to them, and some that are contained in Taplin's treatise are prescribed with so little judgment and experience, that it is an even chance that every horse that is obliged to take them dies under their operation.

More than twenty instances of this fact have occurred to the observation of the author of the present treatise, and the carelessness in compounding, and the bad and uncertain quality of the drugs used by the major part of druggists, are a very serious and important evil.

This is no unjust accusation, for, in general, any thing is considered good enough for cattle-medicine, and even the sweepings of the shops are sometimes employed for that purpose.

In the foregoing observations on the practice of purging horses of all descriptions, the author of the present work has dilated as much as possible, because the practice,

although a very common one, is frequently attended with much inconvenience and danger to the animal. That many cases occur where purging is necessary, cannot be disputed, but it is also equally necessary that the operation should be conducted with prudence and judgment.

In regard to that part of the purging discipline which relates to race-horses, a reformation, or at least a better understanding of its principles, is certainly wanting. For when the great difference of constitution amongst different horses is taken into consideration, must it not appear extremely absurd that all should be treated alike; yet, perhaps, no one instance can be found where a race-horse was ever considered as properly trained to run a race without having first taken three strong doses of purging physic. The consequences of this treatment on a horse of a delicate and washy constitution must be sufficiently obvious to common sense, but the magical attributes of a third dose always supersede every other consideration, and the rule of three is adhered to in all cases as inviolably as the practice of eating breakfast, dinner, and supper.

When a race-horse has been, according to the opinion of the trainer, sufficiently purged, the next process is to begin his exercise. But notwithstanding the purging has been completed, he has still to undergo, at certain intervals, the ceremony of taking cordial or diuretic balls, whether necessary from any external indications or not. But under all circumstances, and at all seasons of the year, he is kept constantly cloathed from head to tail, both in and out of the stable. He is also galloped and sweated in his cloaths at such intervals as are deemed necessary.

That this system of constant cloathing must be unhealthy there can be no doubt, for the following reasons: in the first place, there is constantly, (during health) a vapour arising from the skin of all animal bodies, which is called the insensible perspiration. This vapour, when the surface of the body is exposed to atmospheric air, is absorbed by the air, and the skin remains sweet and wholesome, but when cloathing is placed between the surface of the skin and the atmosphere, this vapour is absorbed by the cloathing, and the skin is deprived of the purifying and invigorating effect of the application of fresh air, and the vapour by being confined becomes rank and unwholesome, and must have a greater or less tendency to promote disease.

In fact, the body-cloaths and hood are never taken off during the whole period of training, except at those times when the animal is curried and brushed. Under the influence of such a custom as this it will be easy to conceive the state of a race-horse when stripped on the middle of Newmarket-heath, on a cold and blowing day, in the month of March, with the wind whistling in his ears, which, until that moment, had been covered with a thick wollen hood. Let the reader figure to himself the paralysing effect of such a sudden exposure to cold, and he may fancy he sees the astonished animal standing all in a heap, with his back up, his legs drawn together, and his tail close to his buttocks, shivering and shaking like an aspen leaf, and scarcely able to breathe, from the contracted state of the intercostal muscles, arising from the sensation of extreme cold. Is it not fair to presume that such a state must be highly adverse to a horse's run-

ning with ease to himself? for, in fact, he may be said to be half blown before he starts, and the violent efforts which the heart is obliged to make, to propel the blood to the surface, when the motion and velocity of the body are increased, must be such as to endanger the rupture of some blood-vessel of importance, or at least to produce some inflammatory disease. Nor is the custom of constant cloathing less prejudicial in another point of view, namely, when giving the horse his sweats full cloathed. This practice undoubtedly contributes to increase the quantity of perspirable fluid discharged from the skin during the galloping, and it is upon this principle that jockeys reduce themselves in weight very rapidly and suddenly by walking and running with two or three suits of cloaths on at once; but the consequence of this sudden and excessive sweating is always a subsequent weakness and exhaustion, as the jockeys well know by their own experience, and which, indeed, they amply testify by their pale and emaciated looks; and, that it is ultimately hurtful to the constitution, is sufficiently proved by the fact that very few of them live to an advanced age.

It is the common practice for the horse to undergo one of these violent sweats at intervals of nine or ten days, and it generally requires two or three days to elapse before he recovers from its immediate effects, which are sometimes a loss of appetite, great costiveness, and a general stiffness and rigidity in the limbs and body. That it is necessary to sweat a horse, so as to disencumber the vessels of his body from superfluity, in order to prepare him for racing, or any other violent exertion, cannot be doubted, but it is very doubtful whether such extreme and partial sweatings at long intervals are of any service whatever; for the vessels, when thus overacted upon, lose their natural elasticity for some time, and become as it were torpid and paralysed, and the common and necessary action of insensible perspiration becomes greatly impeded, if not suspended altogether. It is an indisputable fact, that a certain regular portion of daily labour strengthens and invigorates the human frame; hence it is reasonable to conclude, that the system usually adopted for training boxers, is not only absurd in many of its principles, but that it very frequently weakens instead of strengthening; since, after all its mysteries, nine labouring men out of ten, who are in the constant habit of going through a certain quantity of daily labour, will be found to be in better condition, both as to strength and wind, than these boxers, after all their calomel purges and courses of raw beef-steaks, &c.

The daily labourer never accumulates any superfluous flesh, fat, or fluids; his muscles are always hard, firm, and elastic; but it is far different with these boxers, who, in the intervals between their matches, generally lead idle and debauched lives, and have to get rid of all the superfluities arising from such a course, in perhaps the short space of a month, and sometimes less. The sudden reduction of bulk in animal bodies must produce weakness, inasmuch as the skin and vessels do not immediately contract, so as to adapt themselves to the diminution of substance; hence the skin and flesh feel flabby, and there is none of that elasticity which is the surest criterion of health and vigour. Precisely the same thing occurs with a horse when taken up fat from grass; and purged

and sweated, both suddenly and violently. Debility ensues, and it sometimes happens, that after all the violent sweats he has undergone, he will be all in a lather before he has run a third part of his race, to the great astonishment of the trainer, who never dreams that it is possible for such an event to take place from *too much* as well as from too little previous sweating.

There are some horses that naturally sweat more than others, owing to a constitutional laxity of fibre; nevertheless, such horses may be in as good health and condition as any others; and all attempts to reduce this peculiar propensity to sweating, by immoderate purging and violent exercise, only create debility, and are so far from having the effect of diminishing, that they generally tend to increase it.

The celebrated horse Poulton was one of this description. He was naturally a strong fleshy animal, and always appeared to sweat immoderately when running; and, owing to this circumstance, there can be no doubt of his having been sometimes trained to such a degree as to reduce his powers both of speed and continuance.

If the foregoing observations are founded on a rational and physiological basis, it must be obvious that the present system of training is in many respects absurd, as well as injurious to the animal.

It is therefore probable that a much better system might be substituted, but the difficulty would be to persuade any regular trainer to try the experiment; nor indeed would it be likely that the result would always be put to a fair test, because, if a horse, so trained, should happen to be beat, the failure would not be attributed to any superiority of speed or bottom on the part of his adversary, but to the deviation from the old and customary rules of training.

The system which the author wishes to recommend is, that the exercise should be more regular, more moderate, and of longer duration. Thus, for instance, the horse might be ridden gently for a few minutes with his cloaths on; by which time the circulation of the blood would be so much increased as to resist any ill effects of the sudden application of cold to the body. He might then be stripped, and set off at a canter, or a hand-gallop, for about a mile; then walked for a few minutes, and the cantering repeated and continued in this way alternately for about an hour, taking care that the animal should not sweat beyond a general and moderate moisture of the skin. This portion of exercise should be given him twice a day for the first fortnight or three weeks after he has gone through his physic, and it might afterwards be increased by giving him some strong gallops, in order to practice him in the free use and command of his limbs to the utmost extent of action. By thus sweating, with his body and head and neck uncovered, he will have the benefit of the contact of the fresh air, the vapour arising from the skin will fly off as fast as it is produced, and the vessels will be strengthened and invigorated by the freshness of the passing breeze. If any further reasoning were necessary to shew the bad effects of immoderate sweating in the body cloaths, the following analogy might very fairly supply it. It is a fact, which most horsemen and drivers of horses must know, that a horse, when going *with* the wind sweats more than when he is going *against* it, and this

simply from the circumstance of his being in the first case, constantly surrounded by the vapour arising from his own body; whereas, in the latter case the wind meeting him, drives it away, and with a quickness proportioned to the velocity with which he is going. Hence a horse is always much more fatigued and exhausted when he goes *with* the wind than when he goes against it. The same difference exists in regard to labouring men who work in breweries, sugar-baking houses, or in manufactories that are crowded and confined. These men sweat very much, and certainly more than others that are employed, perhaps, on more laborious occupations in the open air; but so far from their being stronger, or more healthy, from that excessive sweating, they are certainly rendered weaker by it, and seldom, or never, have that fresh and florid appearance which is seen in the countenances of those who work in the fields exposed to the wind and sun.

There is certainly no description of horse, let his training be what it may, that is in such high condition as those that run in mail-coaches. Now it is a well-known fact, that these horses, so far from being cloathed, not only stand uncovered, but in open stables with both doors and windows open, and are exposed to the hardship of bad weather and other evils from which the race-horse is constantly protected with the most unremitting care and attention. The only difference that can arise from the cloathing is the shortness and fineness of the coat, and it is very probable that either *Filho da Puta,* or any other celebrated racer, would run quite as fast and as long with the hair of his coat an inch and a half in length, as in any other state, besides the certainty of his being more hardy and vigorous than when kept muffled up from head to foot with cloathing, and confined in a stable with scarcely air enough to breathe.

It may be urged, perhaps, that if any evils arise from the present system of training, they operate no more against one horse than another, since all horses intended for the race are generally exposed to the same treatment.

This might be true, provided all horses were alike in constitution, but as that is not the case, it is evident that its effects must be more injurious to some horses than to others. It certainly is very proper to reduce the fat of a horse that is destined for the course, as much as can be done without producing debility, since it reduces his weight, and gives more freedom and elasticity to the action of his limbs. But this is better effected in a gradual manner, by regular and moderate exercise, than by sudden and strong evacuations by purging, accompanied with violent sweating, and the constant relaxing effect of being kept cloathed from head to foot.

Another part of the system of training, namely, that of keeping the horse for several hours on the muzzle before he starts, must, in many cases, be very injurious. For although it would be highly improper to start a horse with a full belly, still, on the other hand, too long fasting may occasion such a degree of exhaustion as to produce faintness, and the consequence of such a state of weakness in running a four-mile heat, perhaps twice over, may be easily conceived. The horse is, by nature, an animal that is constantly eating, his stomach is small in proportion to the bulk of his body, and consequently requires to be filled more frequently,

and there can be no doubt that a race-horse might have a moderate meal given to him about three or four hours before he started, without the risk of any inconvenience whatever. The author feels aware that this opinion is not likely to gain many proselytes, on account of its being in such direct opposition to the usual practice.

Its opponents will, perhaps, argue that the stomach and intestines ought to be as empty as possible, in order to give the lungs sufficient room for free respiration. This, to a certain degree, is true, but the principal source of a free and unrestrained action in the lungs depends more upon the strong and vigorous action of the muscles of the ribs and diaphragm than upon any other circumstance, for the lungs have no action of themselves, but move solely in obedience to the muscles before-mentioned.

On this account, therefore, when the animal is weak and exhausted by too long fasting, the motion of the muscles of the chest will be proportionably languid, and he will be as much distressed as he would have been under the inconvenience of an overloaded stomach. To prevent this exhaustion, therefore, it is evident that the horse should not be fasted so long as is the general practice, and which practice must be injurious in a two-fold degree to those horses that have to travel a considerable distance from one set of races to another, because, as they never go faster than a walk, the greatest part of the day is occupied in travelling, so as to allow but little time for rest and feeding.

In training racers some difference should be made in regard to mares, because they are not so uniform and regular in their constitutions as horses, being subject to periodical excitements to intercourse with the male, and during which periods they are certainly much weaker and less capable of great exertion than at others.

The indications of such a state are sufficiently visible when it occurs, so as to leave no doubt on the subject.

The consequences are, that the mare is, during the time that it lasts, either more or less in a feverish state, is restless, and takes but little food or water, and sweats much and soon when exercised. Should this occur at the precise time of her being obliged to run, there can be no doubt of its being a very unfavourable circumstance, and if the match should not be considered in her favour before starting, it would, perhaps, be more advisable for the owner to pay forfeit than to start under the inconvenience above-mentioned.

When it occurs during training, the best course to be adopted is, to give bran mashes, and occasionally some Epsom salts, to the quantity of six ounces at a dose; but it would be improper to bleed or to give any strong drastic purges, because, although they would accelerate the removal of the symptoms, still they would occasion a subsequent debility, quite as detrimental as that arising from the other cause.

It is customary with training-grooms to water their horses at a brook, or at a trough erected on some part of the training-ground for this purpose; and immediately afterwards to set them off on a canter or hand-gallop with the tenntion, as they say, of warming the water in their bellies. Such a practice, however, is not only unnecessary, but improper, for the stomach, when suddenly distended either by food or water, requires

repose rather than exercise, and as its increased bulk is adverse to free breathing, it is obvious that to gallop the animal in that state can be productive of no benefit whatever. For as the sudden application of the cold-water to the stomach contracts the blood-vessels of that organ, and, for a time, drives out the blood, it must be evident that the galloping, by increasing the circulation of the blood throughout the body before these vessels of the stomach have had time to return to their former state of relaxation, must have the effect of forcing them when unprepared, and may possibly produce spasm with all its fatal consequences. The next point to be considered in regard to training stables is the custom of keeping them hot by excluding atmospheric air, and that this is a common practice needs no demonstration, as every person who enters them must have discovered from his own feelings, and in the summer season this evil must, of course, exist to a very great degree. What renders this still worse is, that it frequently happens that from the situation and structure of many stables, no opening can be made to allow a sufficient quantity of fresh air to enter, so as to enable horses confined in them to breathe with any tolerable degree of freedom. The door is generally the only entrance for air, and that can only happen occasionally when it is opened. The intercourse that must necessarily take place during the day in going in and out of the stable of course admits a casual influx of fresh air, but in the morning, when the door has been shut up all night, and especially in summer, the heat is intolerable, and the air so foul that a man can hardly breathe in it, whilst at the same time the sharpness of the volatile salts, arising from the urine, which has been absorbed by the straw, attacks the nose and eyes, and occasions a copious discharge of tears.

How is it possible, therefore, that an animal can subsist, much less prove vigorous and healthy, whilst breathing such a contaminated atmosphere. The offensive vapour arising from the litter, it must be acknowledged, is generally much less in racing-stables than in others, because the straw is frequently changed, and every particle of dung removed almost as soon as it appears. But when we consider the state of an animal kept as it were in a constant perspiration by warm cloathing, and obliged to breathe nearly the same atmosphere during the night, how can we rationally expect him to be active and vigorous to perform his day's work. Must he not rather be faint, languid, and dull, his whole system unhinged and in a relaxed state. If any one doubts the effects of such treatment, let him try the experiment by sleeping in a close, hot room, covered up with clothes, and after sweating out the night, he will be pretty well convinced of his inability to undergo any great bodily fatigue on the following day.

Although the description here given of the situation of horses in some stables through the night may appear overcharged, it is, nevertheless, a true one. But how must the evils arising from this source be aggravated, when it is known that not only the threshold of the door is blocked up with litter, but even the key-hole is filled up with hay, to prevent, if possible, the entrance of any external air whatever.

We know from experience, that when a number of people are assembled together in a close room, the air within it becomes moist

and hot, which renders breathing difficult, and if continued in for a length of time, this uneasy sensation increases. In churches, or crowded assemblies, lighted with candles, the effect of a heated foul air is evident to the sight, from the lights burning dim and very faintly, and although the loftiness of the roofs in such places contributes to render it less perceptible to those who are on the lower or ground-floor (as the heated foul air always ascends) yet to those who are in the higher parts, or galleries, the oppression it occasions in breathing is great, the perspiration becomes profuse, and their thirst increases. The bad effects of breathing long in a heated foul air are too well known by those whose occupations in life have rendered it necessary, and whose vigour of constitution has abated in proportion to this exposure. The lowness of the roof in most stables renders them unwholesome from that circumstance alone, the horses' heads being too near the roof, are obliged constantly to breathe the heated foul air which always occupies the upper part of the stable.

That horses exposed to these inconveniences should be more liable to disease cannot be a matter of surprise.

The constitution of a horse, strong as it is, cannot always bear sudden transitions from heat to cold, and from cold to heat, with impunity. The great and unnatural heat, and the profuse perspiration consequent thereon, dissipates the watery parts of the blood, and renders it too thick for circulation, and from that cause alone many diseases may arise. The constant breathing of a hot foul air does not expand the lungs sufficiently, so as to promote the circulation of the blood through them, hence it is accumulated and may, probably, be the principal cause of broken-wind. It likewise renders the horse liable to fever, langour, and loss of appetite. It exposes him to all those external complaints which arise from obstructed perspiration, as rheumatism, tumours in the glands, farcy, grease, and eruptions of the skin. But the danger is still greater when the perspirable matter, which should be carried off in the ordinary course, is thrown upon some of the internal viscera, as the lungs, intestines, brain, &c.

From the first of these proceed coughs, inflammations of the lungs, consumptions, &c. and when the intestines are affected, obstructions arise, and sometimes diarrhœa, or scouring.

When the brain is affected by it, it produces vertigo, or staggers, apoplexy, epilepsy, &c.

These complaints, if not speedily removed, generally prove fatal in one way or other.

The heated foul air which generally prevails in such stables as are kept too close, is always accompanied with dampness, or moisture. This is occasioned by their being made so close, that no fresh air can be admitted into them, but what passes in accidentally. Hence the moisture from the horse's perspiration and breath may be increased from a low damp situation, gathers, or is collected, in large drops on the roof, walls, and glass-windows, and runs down in small streams.

At the same time the stable is filled with a hot, damp, and moist air, which is not only extremely pernicious to the health of those animals, but destructive to the furniture of every kind.

It will hardly be necessary to make any

further remarks on the distinction between fresh and pure air, and that which is heated and foul, as every one must have felt the difference at one time or other. It will be sufficient to observe, that air is the chief instrument of health, and principle of life, without which no animal can subsist, and that when its purity is destroyed by respiration, the admission of a fresh supply from without is indispensibly necessary to health and even to existence. Besides, particular situations and seasons often alter the quality of the air, and render it more or less unfavourable to animal life. Nature, therefore, constantly attempts to restore the air to its original properties, by keeping up a circulation in consequence of its being rarified by heat, by which means the hot air passes out at one aperture, whilst the cold air enters at another.

Although the air is, by these means, preserved in a wholesome state, yet as has been just observed, particular situations and seasons often change its qualities, so as to render it more or less hurtful. Its dryness produces one species of disease, its moisture another, its heat or its cold may also prove prejudicial to health.

It is well known that no animal can exist long in one individual quantity of air. Thus it is computed that a man renders a gallon of air unfit for respiration after he has breathed in it for the space of one minute, consequently a hogshead of air would not last him one hour, nor indeed could he live in it one third of that time. Hence, therefore, it is proved that without a continual supply of fresh air, the lungs cannot perform their office.

This will appear still more necessary when it is known that the lungs occasion, during th act of breathing, an important change in the blood which passes through them, and which change is absolutely necessary to the existence of all animals that circulate red blood.

Dr. Hales, in his curious and useful experiments, states, that he found he could not live half a minute without uneasiness in seventy-four cubical inches of atmospheric air, and not one minute without danger of suffocation.

Since his time, however, many additional and important discoveries have been made upon this subject.

If the quantity of air above-mentioned be rendered unfit for respiration by a man's breathing in it for so short a time, we may conclude, that a much greater quantity of air would be rendered unfit for respiration in the same time by a horse, whose lungs are considerably larger, and which, consequently, must draw in a greater quantity of air at each inspiration. The effluvia from animal bodies likewise imparts noxious qualities to the air. Three thousand human beings, living within the compass of one acre of ground, would make an atmosphere of their own steam seventy feet high, which would soon become pestilential, if it were not dispersed by the winds.

The air of prisons, for this reason, produces malignant fevers, and pestilential diseases. The event of the black-hole at Calcutta, which happened several years ago, records a dreadful instance of the fatal effects of the want of fresh air for the purpose of breathing.

Moist air relaxes all animal fibres. Such diseases, therefore, as proceed from laxity of fibre, must be the customary diseases of moist

seasons and of moist situations. Dry air, by producing opposite effects, produces opposite diseases. Cold air, by bracing the fibres, and giving them a stimulus, produces that strength and activity of which we are so sensible in frosty weather. Hot air, on the other hand, relaxes the fibres, so as to occasion that faintness and debility so often experienced in hot weather. Stables which contain a great number of horses, are attended with other disadvantages, besides those already mentioned, especially to tired horses, or those that are labouring under disease, from the frequent repetition of going in and out by the grooms, or other persons during the day.

On this account, horses that are shy to lie down, or that are easily disturbed, will not have those opportunities of resting their legs and feet which is so essential to keeping them fine and free from swelling. Rest to all animals must be of the greatest importance, because, if the animal spirits are not recruited by relaxation and repose at certain intervals, the animal must be almost always excited to an inordinate degree, and must soon be worn out.

The custom of galloping race-horses in body cloaths, is adopted on the ground of their being thereby made to sweat more profusely, and with less labour, than would be the case if they were galloped naked, and this is considered an advantage, because young horses, in galloping, are apt to break down in the fore-legs.

This argument, as far as it regards the danger of the horse being lamed, may, perhaps, hold good, but it does not overturn the fact of the insufficiency of the practice in regard to training, and here a question naturally arises, why race-horses should be more subject to break down than others, especially as they carry verylight weights, and are always exercised upon turf. Their limbs, it is true, are more delicate, but still they have less weight to carry, because the body is in a relative proportion with the legs.

The failure, then, must arise from some other cause, and the following is, perhaps, the most probable. The racing-colt begins his labours generally at two years old. In order to be trained, he is taken up into the stable, and for a considerable length of time he is never exercised beyond a walk, (indeed, the race-horse is never allowed to trot during any part of his life). He then begins to take his sweats by galloping, and is thus brought all at once from a pace requiring but little comparative exertion to one that brings the whole machine into violent action. This process, it must be evident, is very different from that which takes place with a colt when running wild in a state of nature, where he exercises himself by galloping and bounding very frequently during the day, and by which means (although it is possible he may sometimes lame himself) his joints, ligaments, and tendons become strengthened and invigorated, and are better able to support the shock of the body during violent and rapid motion. Hence, therefore, it is probable, that it would be a good plan to give the colt, whilst in training, a gentle canter for a short distance every time he goes out, which would, in some degree, prepare his limbs for the more violent effort of galloping.

At all events, the system of sweating horses in body-cloaths, with the view of exhausting them of all superfluous fat and fluid as expeditiously, and with as little

labour as possible, cannot have the effect of bringing them into such good condition as if it were effected by more protracted labour, because it is by exercise that animal bodies are strengthened and rendered vigorous, and not by profuse and rapid sweating, which has a tendency to weaken than otherwise.

It is also a great mistake to suppose, that, because a horse is fine in his coat, he must be in high condition for work, since it is very possible to make a horse fine in his coat, even without ever taking him out of the stable, as it may be done by warm cloathing and good cleaning alone.

In submitting the foregoing observations on training race-horses, the author is well aware that he must be subject to every species of opposition from those who are obstinately attached to the present system of conducting that process. But although it may be true that the plan which he recommends has not been put in practice by any regular trainer, still that furnishes no good reason why it should never be tried, for it is only by employing different systems that any sound and useful experience can be obtained.

DISEASES OF THE EYE.

Diseases of this organ in the horse are of such importance, as far as regards his future utility, that it becomes a very essential branch of the veterinary art to ascertain their causes, as well as to establish the means of a cure. The parts which are most generally affected, are the tunica conjunctiva, and the transparent cornea. These frequently become suddenly and violently inflamed, attended with a partial determination of the blood, an overflowing of the tears, and a protrusion of the membrana nictitans, together with a great difficulty in bearing the light. These attacks are sometimes periodical, and thence have been vulgarly termed moon-blindness, though it is certain that the moon has no influence whatever in this disease.

But antecedently to entering into a description of the diseases of the eye, it will be proper to give some general detail of its anatomical structure. The eye is retained in the cavity termed the orbit, by a variety of appendages, all essential to its welfare and economy.

The eye-lids are composed of a mixture of membranous and cartilaginous substances, and these terminate on their edges in a firm cartilaginous body, called, "Tarsus." The tarsus is extremely vascular, and its vessels are attached to what are denominated the ciliary ducts, secreting a fluid for the purpose of moistening and lubricating the surface of the tarsi, and thereby preventing those consequences which constant friction would otherwise produce.

When the tarsi become diseased, matter, or pus, is discharged instead of the usual healthy fluid. In this state, excoriations of the adjacent parts, and temporary adhesions of the eye-lids may be expected. Two muscles, the elevator palpebræ and the orbicularis, perform the offices of opening and closing the eye-lids. The eye-lids of the horse are not so plentifully furnished with hair, called eye-lashes, as those of the human subject; they are few and scattered, yet they fully serve to protect the eye from insects and other extraneous articles. The internal part of the eye-lids is covered by a thin, fine, vascular membrane, the tunica conjunctiva. This coat is reflected over the whole of the front of the ocular globe; where it ceases to be vascular almost entirely, and acquires a high degree of transparency, particularly in the centre of the eye. This transparency, however, is diminished, or destroyed, when the conjunctiva is diseased. As the tears contain a considerable portion of salt, they would be constantly producing irritation on the tunica conjunctiva, did not this membrane secrete a mucous to defend it from such an effect. The lachrymal gland is situated at the outer corner and superior part of the eye. It has five, and sometimes six, excretory ducts, which convey the tears over the surface of the eye, by the puncta lachrymalia; they enter the nasal duct, and are thence carried to the nose. The puncta lachrymalia of the horse's eye are much larger, in proportion, than they are found in the human subject.

The horse has no lachrymal sac, as the nasal duct is bony as far as the tubernated bones, where it becomes membranous, and terminates near the extremity of the nostril. The tears are designed to preserve the transparency of the eye, to wash off extraneous substances, and to prevent any ill consequences from the friction between the cornea and the palpebræ.

The lachrymal gland of the horse differs from that of the human subject, in not possessing a voluntary power, or being subject to the emotions of the mind. In the human eye, the lachrymal duct is frequently diseased, it may have its action morbidly increased, and the tears fall over instead of passing into the nose. This, however, never takes place with the horse, except from inflammation. Whenever the nasal duct is obstructed, the disease may be removed by the introduction of warm water with a syringe applied to the small hole within the nostrils.

At the inner corner of the eye, is placed a cartilaginous body, which is peculiar to all quadrupeds. This is called the membrana nictitans, vulgarly called the "hawe."

In the eyes of birds, also, there is a similar appendage, and which may in them rather be called a membrane, for it is simply skin, and not gristly as in the horse. Birds have a muscle for the sole use of directing the motion of this membrane, but horses have none. Whenever the eye is inflamed, it is drawn into the orbit by the retractor muscle, and the hawe being prevented from accompanying it by the bones of the orbit, seems to pass over about one half of the surface. If by any motion of the eye it be drawn to the internal corner, the membrana nictitans will have the appearance of covering the whole.

This membrane is generally mistaken by the common farriers for a disease, who always recommend cutting it away whenever the eye is disordered by inflammation or any

other cause. The use of the hawe, or membrana nictitans, being to wipe off dust and other extraneous matters from the surface of the eye, it must be evident, that in cutting it away the animal will be deprived of a very useful and necessary appendage to the eye, with which he has been supplied by nature.

The eye is composed of three coats, and three humours. The transparent cornea of the horse is large in proportion to that of the human being. This circumstance furnishes the eye with a more extensive scope of vision. On removing the transparent cornea, the aqueous humour escapes, and the iris appears. The iris is a muscular curtain, having an open space in the middle, which is called the pupil. In the horse the pupil is of an oblong form. In man, it is circular. It is capable of contracting and dilating, according to the strength of light in which the animal may happen to stand. This curtain, or iris, divides the eye-ball into two partitions, called the anterior and posterior chamber. These are occupied by the aqueous humour.

The pupil in the human eye appears black, but in the horse it is generally of a blueish cast. The aqueous humour gives a convexity to the eye, refracts the rays of light, and enables the pupil to perform its office. The membrana pupillaris covers the pupil during the fœtal state, and is absorbed before birth, at about the sixth or seventh month. It receives the blood-vessels from the iris and the anterior part of the crystalline lens, the growth of which it appears to promote, the lens not increasing much after birth. The iris regulates the quantity of light entering through the pupil, and when the former contracts, the latter is enlarged, and *vice versa*. A peculiarity in the eye of the horse is, his having several small black round substances at the edge of the iris.

The particular use of these bodies is not known. They have very much the appearance of the folds of a curtain when drawn up in wrinkles. On removing the iris the second humour, the crystalline lens, makes its appearance. This is retained in its situation by a coat called its capsule, between which and the lens a quantity of fluid has been discovered, termed, by anatomists, the liquor morgagne, from the name of the anatomist who first discovered it, and supposed to be intended to prevent an immediate contact of the parts. The crystalline lens, in health, is perfectly transparent; its structure is such that the outer parts are soft, and become more and more firm as we approach towards the centre. Many anatomists have entertained doubts whether the crystalline lens be an organized body; some have considered it as destitute of both blood-vessels and nerves, possessing no apparent sensibility. But the pain which attends it in disease seems to contradict such an opinion, and that it has vessels capable of conveying red blood has been repeatedly demonstrated by injection.

The use of the crystalline lens is to afford, by the refraction of light, a focal point or the retina. To produce perfect vision, this point must vary, a change easily accomplished, whatever may be the distance of the object, when the eye is in a state of health. This depends on the power of the lens, which, when removed from the human eye, has its functions supplied by the use of spectacles.

When an object is viewed at a distance, a

contraction takes place in the pupil, and the rays of light passing through the centre of the lens, the focal distance is strengthened. By the power of the iris the eye is enabled to accommodate itself to objects of various distances and dimensions. The ciliary processes are a continuation of the choroid coat. In order to embrace the crystalline lens, they are thrown into plains and folds. Their use is to oblige all the rays of light to pass directly through the lens. Some animals, fish for instance, have no ciliary processes.

The third humour of the eye is the vitreous. This fluid is not contained in one general bag, or chamber, but in numerous minute cells, resembling those of the orange, and of an admirable transparency. This humour is of the consistence and appearance of pure water.

The vitreous humour serves to produce a small degree of refraction in the rays of light, and occupies and distends the posterior part of the globe of the eye.

The caruncula lachrymalis of the horse differs from that of the human being, it being much less vascular. Its situation lies between the two puncta; it is vascular only where it comes in contact with the tears, which it directs into the puncta. It is partially covered by the conjunctiva. There are three coats in the formation of the eye. The first of these is the opaque cornea, or sclerotica. In horses the concealed part of the globe of the eye is covered by the opaque cornea.

It is here very firm and dense in its texture, and assists in the protection and formation of the organ of vision. From its usual appearance it is probably not endowed with many nerves, or any considerable vascularity. The next coat lines the internal surface of the opaque cornea, but does not continue over the transparent portion. It is called the choroid, and is a particularly fine vascular and sensible membrane. The arteries from which it is supplied are the two ciliary. It is constantly secreting a matter, which, in the living state, has a membranous appearance, but after death it approaches to a mucous consistence. This secretion in the human eye is black, and is called the nigrum pigmentum. In the horse this lines the whole of the iris, the ciliary processes and the junction between the sclerotica and the choroid coat. The external part of the choroid, that which is expanded over the retina, is not covered by the pigmentum, but by a variegated substance. The superior part of the choroid coat in several animals has this appearance.

On minute examination we find it difficult to determine whether the pupil of the horse has the most affinity to a grey or green colour, it approaching considerably to each. The eyes of some animals, as ferrets, rabbits, &c. have no pigmentum, and the choroid coat of fish resembles silver. The use of the pigmentum nigrum is to absorb light, all black substances having that property. The varigated coat does not seem to be produced by the choroid, to which however it is connected by the cellular membrane. The third coat is the retina; this is a beautifully delicate expansion of the optic nerve over the surface of the choroid coat. The whole of the vitreous humour may be said to be in contact with the retina. The optic, or central artery, supplies the retina with blood, and is minutely distributed throughout the substance of it. Light is always more or less refracted,

according to the density of the medium through which it passes.

The eyes of all animals differ in the degree of the convexity of the cornea, but as this coat is a firm medium, it produces considerable refraction. The human eye is much more convex than the eye of the horse, and the latter cannot therefore behold objects at so short a focal distance. When a deficiency of vision takes place in youth, from a too great convexity of the cornea, the inconvenience will diminish by age. Light proceeds through the cornea into the aqueous humour. There it experiences some little refraction. Thence it passes through the more fluid part of the lens into the centre, where it becomes a focal point. It afterwards generally diverges until it has terminated in the retina. It is one of the curious phænomena of vision, that objects are represented inverted on the retina. The reason why horses and other quadrupeds see better than men during the night, is from their being furnished with a larger proportion of transparent cornea, and to this superiority, with regard to the horse, the variegated coat very much contributes. When we recollect that no such thing exists in nature as positive darkness, and that the state which, to our senses, may appear to approach nearest to this, contains numerous though obscure rays of light, we may easily conceive that the larger the surfaces of admission for these rays the more complete will be the optical organs. Besides, the pupil of the horse's eye is less limited in its functions and powers, and the crystalline lens is proportionably larger than in the human subject.

Inflammatory diseases of the eye may be divided into two, namely, external and internal. The external inflammatory state may arise from various causes, such as blows, or from extraneous substances, such as chaff, hay-seeds, &c. lodging between the eye-lids and the surface of the eye.

In any of these cases the eye will be more or less inflamed, the eye-lids will be nearly closed, and much swollen, and the tears will run over the cheeks. The hawe is, more or less, drawn over the eye-ball, to prevent the admission of light, which in this state of the eye would irritate it and increase the inflammation.

This external inflammation may also arise from a full habit of body, from too great costiveness, and from want of sufficient exercise. In addition to the appearance just described, the surface of the transparent cornea will be more or less opaque. This opacity, or whiteness, is occasioned by the lymph of the blood being forced between the laminæ of the cornea, and thereby destroying its transparency. The pupil, also, is more contracted. This kind of attack upon the eye, is always much aggravated by standing in the stable, especially in those where the dung is suffered to accumulate, and to lie for any length of time, in which case, the volatile salts which arise from it irritate the eyes, and, of course, add to the disease. When the inflammation is merely local, or arising from a blow, or any extraneous substance adhering to the eye, it may generally be easily removed; but when it arises from a full and bad habit of body, it is more obstinate and requires a longer time for its removal.

It is a certain fact, that horses, whilst at grass, are seldom affected with complaints in the eyes, although it might be supposed that the constant hanging down of the head in

grazing would dispose them more to disease. The common inflammatory attack on the eye may be attributed, in general, to a full habit, want of sufficient exercise, and that constant and extreme costiveness which usually attends horses when kept in the stable upon dry food. These attacks, however, are more prevalent when the animal is six years old, than afterwards.

The most rational way of accounting for this circumstance is, that during the growth of the horse, the superabundant blood is employed in increasing the size of every part of the body, whilst, on the other hand, when he has done growing, the blood, finding no means of self-consumption, overloads those organs which are the most tender and the most susceptible of disease, especially when the animal is confined in the stable; for it is an absolute fact that very few horses are affected with inflammatory attacks on the eye whilst running at grass, and which might be supposed to be the more likely to occur, on account of their dropping their heads to the ground whilst grazing, and thereby impeding the flow of the blood, by causing it to return from the head in opposition to its own gravity. The darkness of stables in general, particularly those in London, contributes also to render the eyes weak, and more liable to disease. The present fashion of reining up carriage-horses, with a gag-rein, is also very hurtful, by producing a pressure of the jaw-bone against the lower branch of the jugular vein through which the blood passes in its return from the eye. The collar also, when too small for the neck, presses against the vein, and has sometimes the effect of producing a temporary apoplexy As it is possible for all these evils to be combined in the same instance, and as any one of them, even separately, may occasion disease, it is not surprizing that the horse is more subject to blindness than any other quadruped.

There is another disease in the eye which is principally internal, affecting the capsule of the crystalline lens. This often takes place without much external swelling or inflammation; but it is, nevertheless, equally, if not more, dangerous, and it sometimes proceeds imperceptibly until it becomes incurable. In this latter disease the capsule of the lens looks dull and opaque, and there is sometimes a yellowish ropy fluid floating in the anterior chamber of the eye. The pupil, also, is usually more contracted than that of the other eye, and seldom varies its size when placed in different degrees of light. In this state of the eye, the horse sees objects imperfectly, and, of course, is more or less shy. The eye also diminishes somewhat in bulk, and the upper eye-lid appears sunk and wrinkled in consequence of the lachrymal gland wasting in size, and not secreting its natural quantity of fluid for the purpose of moistening the surface of the eye.

In all these cases of disease, however, the first process should be a copious evacuation by bleeding and purging, for without these, all topical applications alone will have but a temporary effect. Therefore, after taking away from three to four quarts of blood, the following purge may be given, viz.

Barbadoes aloes . . 8 drachms
Castile soap . . . 2 drachms,
Syrup of buckthorn sufficient to make a ball.

The above may be given with the usual precautions of bran-mashes and water with the chill off. In case the eye-lids are much inflamed, blood may be drawn from them by scarifying the insides of them with a lancet; blood may also be drawn from the angular or facial vein, which runs from the eye down the side of the face, and thence into the jugular vein. This will help to unload the blood-vessels of the eye, and the purging will have the effect of confining the mass of blood principally to the centre of the body. At the same time the following lotion may be applied externally; viz.

White vitriol - - half-an-ounce
Sugar of lead - - 2 drachms,
Dissolve in a quart of spring-water, to which may be added, half-an-ounce of tutty, or compound powder of ceruss.

The eye may be bathed three or four times daily, with the above lotion.

Gibson recommends the following lotion.

Take two drachms of rose-buds, infuse them in half-a-pint of boiling water; when cold, pour off the infusion, and add to it twenty grains of sugar of lead.

This may be used three or four times daily.

When the ball of the eye has a general white appearance throughout its surface, the rays of light are entirely intercepted, and the animal may be said to be blind. This white appearance of the eye arises from the coagulable lymph being forced between the transparent lamine or coats of the cornea.

In this state of the eye, the old practice was to blow powdered glass into it with the intention of rubbing off the film which was supposed to cover the surface, and the consequence of this practice was to increase the inflammation to a still higher degree.

This custom evidently arose from an entire ignorance of the anatomical structure of the eye, and although it has been for some time exploded by all rational and well-informed practitioners in the veterinary art, yet it is still practised by the common farriers in many parts of the kingdom.

It is true, however, that when the inflammation has subsided, and the whiteness or opacity of the cornea still remains, a slight degree of stimulus is required to increase the action of the absorbent vessels.

For this purpose, the membrana nictitans, or hawe, may be slightly touched with some lunar caustic, which will increase the secretion of tears, or fluid from the lachrymal gland, and will excite the absorbent vessels to take up the lymph which had been thrown out between the coats of the cornea. The absorption may be assisted by the application of blisters on the cheeks, in which case the following may be used.

Viz. Cantharides, powdered 1 drachm,
Sweet oil sufficient to render it of the consistence of treacle.

This quantity will serve for once blistering on both cheeks. It may be rubbed well in with the hand for ten minutes, and the horse may be turned round in the stall, and his head should be secured by the side-reins from each pillar, which will prevent him from rubbing his cheeks during the working of the blister.

The following embrocation has been found

efficacious in inflammatory attacks on the eye:—

Vinegar - - - -	half-a-pint
Crude sal ammoniac	1 drachm
Water - - - - -	3 half-pints

mixed.

Bathe with the above mixture three or four times a day.

In addition to the above, the following embrocation will in general be found useful.

Viz. Spirits of wine - -	half-a-pint
Laudanum - - -	1 drachm
Golard's extract -	half-a-drachm
Spring water - -	a pint & a half

To be mixed together in a quart bottle.

The above may be used three or four times daily.

There are certainly some horses that are naturally more disposed to disease in the eyes than others. In such, the eyes are generally small, and the upper-lid deeply wrinkled. Dealers distinguish them by the appellation of buck-eyes. From the age of three until six, these eyes are frequently more or less diseased, especially if the horse stands in the stable without doing much work. Hence they require particular care and attention in regard to feeding and exercise. That exercise is of service, is sufficiently proved by the fact that many horses that have been sold as unsound in their eyes, have recovered their sight after a few weeks' work in a mail-coach, by which they have been regularly sweated every day, and the vessels thereby unloaded of all superfluity.

In the internal attack of the eye, when the crystalline lens is affected, it sometimes occurs that the whole surface of the lens becomes white and opaque in the space of a few hours.

If the medicines employed in addition to bleeding and blistering be sufficiently active, absorption begins to take place, and the whiteness gradually disappears, but the absorption is seldom complete, as a white speck generally remains on some part of the lens Whenever this speck is perceived on examining a horse, it is a certain indication that the eye has been diseased at some former period, notwithstanding it may then be clear and sound. In all those cases, however, where the opacity or whiteness is not removed in a certain time after the first attack, the absorbents become inactive, and an incurable blindness ensues. When the crystalline lens is thus permanently affected, the disease is called a cataract, and can only be removed by the operation either of depressing or extracting. But as these operations are rendered useless in the horse, on account of a muscle which draws the eye forcibly against the bony surface of the socket, and thereby forces out the aqueous humour through that part of the cornea which has been punctured in the operation, the animal has not the same means of relief in this case as the human being.

There is another disease of the eye, called, in the language of pathology, "gutta serena." This disease arises from a palsy in the optic nerve. It is incurable, and it alters the external appearance of the eye so little as hardly to be distinguished except by anatomists, and it is a fact, that numbers of horses are sold that are blind of one eye, from this cause, without either the seller or the buyer being acquainted with such a circumstance. The principal variation on a

superficial view, consists in the eye having a more glassy appearance than is usual. The eye-lid is generally raised higher than in the sound eye, so that a portion of the white part of the ball appears. These are the general external alterations that take place, but the surest method of ascertaining the existence of the disease, is to place the horse's head opposite a strong light, and to examine the pupils of both eyes, which, in this situation, always contract very considerably; but, if either of the eyes does not contract, it is a certain proof that the horse is blind of that eye, and that the disease arises from a palsy in the optic nerve, called *gutta serena.*

What is the cause of this affection of the optic nerve, it is not easy to determine, especially as the attack is partial.

The idea, perhaps, may be somewhat theoretical, but it is not impossible that it may arise from a compression on that part of the nerve which passes through the small hole at the back part of the bony orbit, owing to a thickening of the coats which surround it in conjunction with the artery which supplies the eye with blood.

This kind of blindness frequently exists in the human subject, without persons themselves being aware of it, and is discovered accidently by their shutting the sound eye and keeping the other open. This may very easily happen, because as the disease seldom comes on all at once, but is progressive in its effects, the healthy eye adapts itself to the grad ual change which is going on in the diseased eye, and blindness takes place wholly unperceived, and the opportunity of affording relief is irrevocably lost.

There is frequently a considerable difference in the shape of the eye in different horses, in regard to its convexity, some being flatter and others more convex. The human eye is much more convex than the eye of the horse, and therefore sees objects that are close more minutely, for light is always more or less refracted, according to the density of the medium through which it passes. When a deficiency of vision takes place in youth, from too great a convexity of the cornea, the inconvenience will diminish by age. Horses that start much at objects on the road have their eyes generally too flat on the surface; the same defect may also arise from their being too round. In the latter case the defect will decrease by age, but it will increase when the eye is too flat. These small eyes are called by the dealers "buck eyes," and are generally objected to as imperfect, and with some reason, since it has been pretty well ascertained that they are naturally more subject to blindness than others.

On the subject of vision there is a curious fact, that all objects which are seen by the eye become inverted, that is to say, are turned upside down in passing through the crystalline lens, and it is supposed that they are represented in this manner on the retina, and that it is by habit and experience alone that the eye rectifies their position. It is possible that this may be the case, but it seems extraordinary that in so important a function as the sight, nature should have left any thing imperfect, which it certainly is, if under the circumstances before-mentioned. It has long occurred to the author of this treatise, that no such imperfection existed, and that the inversion of objects in passing through the lens must be rectified, not by habit, but by some purely optical means, and the theory

which he ventures to entertain upon this difficult subject is, that the objects are rectified in a natural way by the concave reflecting surface of the posterior part of the eye over which the retina is expanded; for it is well known that all concave reflecting surfaces invert the position of objects that are reflected by them, as may be ascertained by looking in the hollow part of a silver spoon, when the features of the face will appear to be turned upside down.

The foregoing comprizes the principal diseases of the eye, and it is certain that the true cause why horses are more subject to blindness than other quadrupeds, arises from their high feeding, and that perpetual costive state of the bowels which attends them in the stable, to which may be also added, the want of regular and sufficient exercise: for blindness is very rarely met with in any other quadruped, except it arises from some accidental violence. Previously to closing this chapter, it may not be irrelevant to the subject to mention the following extraordinary fact, which has been authenticated by the testimony of an eminent physician who resided, during many years, in the East Indies. According to his statement, it appears that it is no uncommon event for small worms to be found floating in the aqueous humour in the anterior chamber of the eye. When the author of this treatise first heard of this curious circumstance, it occurred to him that it might be possible that the coagulable lymph, which is sometimes thrown out in the aqueous humour, might have been mistaken for a worm; but the physician just mentioned assured him that it was a living worm, as he had seen them repeatedly in motion, and that the fact had also been proved by dissection after death.

Worms have been sometimes discovered in the large arteries, particularly the aorta, but it seems extraordinary how they could enter the eye through so small an artery as that which passes to it, and which supplies it with blood.

The eyes of some animals have no pigmentum, such as ferrets, rabbits, &c. In fish the choroid coat resembles silver. The Hanoverian cream-coloured horses, which draw his majesty's state-coach, have a peculiar colour in their eyes, somewhat resembling ferrets. There are also some English horses whose eyes are of a variegated colour. These are called wall-eyes, though it is difficult to account for the derivation of the term. It has been erroneously supposed that wall-eyes, as they are called, never go blind, but such on opinion is founded on no just ground whatever. The hawe, as has been before observed, is a very essential appendage to the eye. Its use is to wipe off extraneous matters which may happen to lodge upon the eye, such as dust, hay-seeds, &c. and it also affords a considerable protection to it. Hence the folly and mischief of removing it, by cutting it away, as is practised by some of the country Farriers, must be sufficiently evident, for though it is sometimes drawn partially over the eye, when the eye is inflamed, still it always returns when the inflammation is removed.

DISEASES OF THE HEART.

It is not surprising that an animal so much exposed to violent and excessive exertion as the horse is, should be subject to disease in the principal organ of the circulation of the blood. But antecedently to entering on the subject, it will be necessary to give an anatomical description of that organ, namely, the Heart, which is a strong muscular substance contained in the thorax, or chest, wherein all the veins terminate, and from which all the arteries arise, and which, by its alternate contractions and dilations, is the chief instrument of the circulation of the blood, and of the principle of life.

This noble part is included in a capsule, or bag, called the pericardium, consisting of a strong membranous substance inclosing the heart like a purse, and of use only to defend it from the friction of the lungs, and to contain a moisture to keep it smooth, and render its motion more easy. The figure of the heart is a cone, broad at bottom, and narrow at top. In a horse, it is not so large as in a bullock, nor proportionably so broad towards its basis. Its fibres are very compact, and laid close together, having a twisted spiral direction, especially towards its top, where it somewhat resembles the contortion of a snail's shell. It is fixed to some of the vertebra of the thorax, by the large vessels that go to and from it.

Its point inclines a little downwards, towards the left side, where it is received into a depression of the left lobe of the lungs, which, perhaps, may be formed in the fœtus, by the position of the heart before the lungs have been filled with air. The heart is nourished and maintained by its own proper vessels, called, the coronary, because they surround its whole substance, like a crown, or garland. It has a middle partition, which divides it internally into two ventricles, or caverns; the left is smaller than the right, and its sides much thicker; its office being to drive the blood to the most distant parts of the body, whereas the right ventricle detaches it only through the lungs. Its inside has several small chords, or compages of fibres, called columnæ carneæ, which resemble the bundles of columns which we see in gothic buildings, and help to comminute and break the grosser parts of the blood in the frequent contraction of the heart.

The contraction and dilation of the heart is called its systole and its diastole. The first, when the vertex, or top of the heart, is drawn down to its basis, to send the blood into all parts of the body; and the latter

when it opens and dilates itself to receive the returning blood. The heart has its auricles, which are so called because they resemble two ears, and are seated at its basis, one on each side, to receive the blood at its entrance, the right from the ascending and descending trunks of the cava, and the left from the pulmonary veins by which it enters in proper portions, and so as it may not rush in with too much violence, or in too great a quantity, so as to interrupt the regular action of the heart, for when the auricles are full the heart is empty, and when the heart is full the auricles are empty. The auricles in their mechanism and structure somewhat resemble that of the heart, only that they are chiefly membranous; whereas the heart is altogether fleshy, for if it was tendinous in any part, as most muscles are, it would be altogether unfit for its office. When the two trunks of the cava open into the right auricle, there is a little eminence, or rising, which prevents the blood of the ascending and descending trunks from rushing together, and causes it to slip more gently into the ventricle; and the coronary veins likewise opening into its entrance with the returning blood from the heart, may probably render this the more necessary.

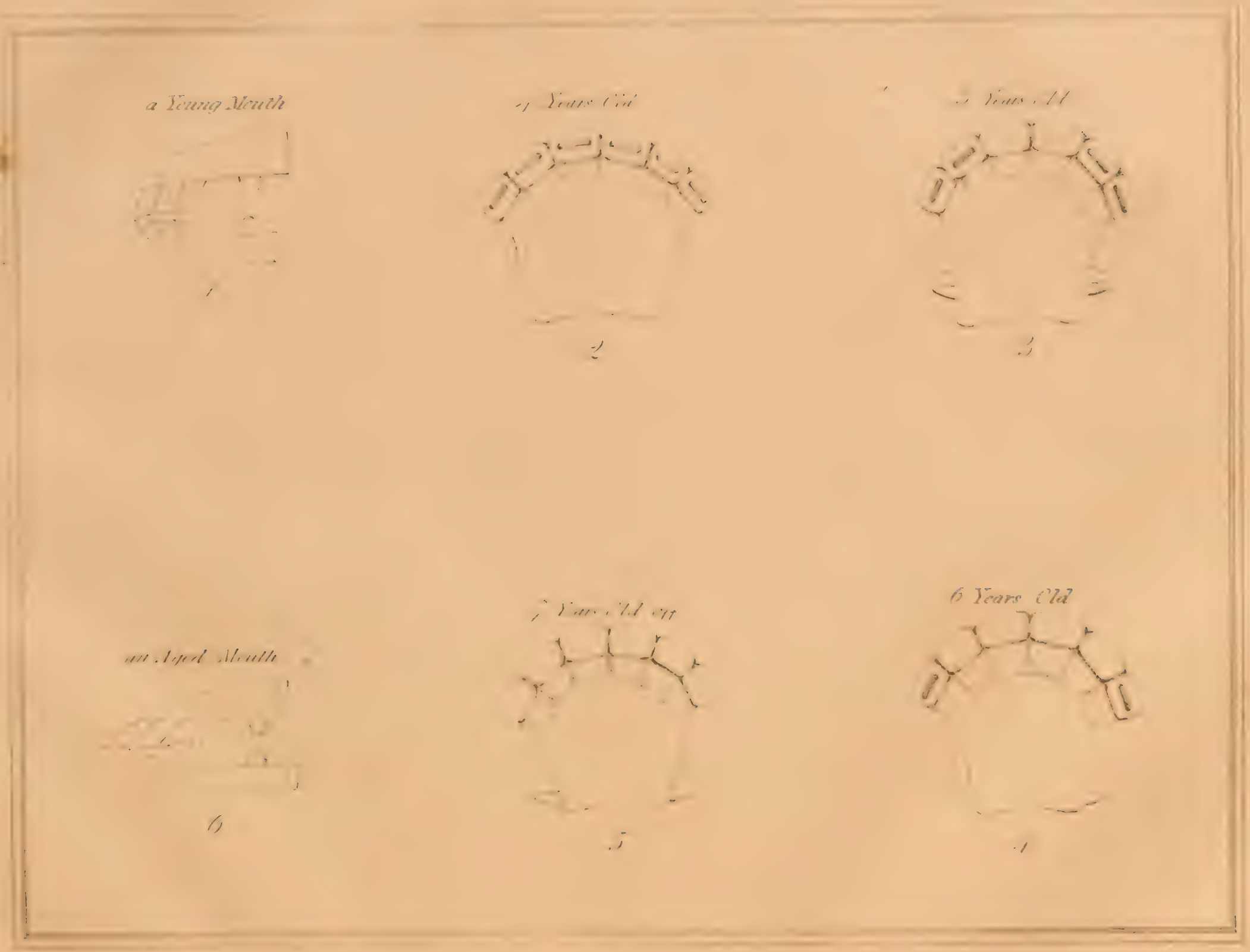
The large vessels which empty the blood into the heart, and those which receive the blood from it, have each of them valves, whereby the blood is forwarded on the passage, but cannot return the same way it came Thus the vena cava, which enters into the right ventricle, has three, called tricuspides, being like so many points of a spear or a lance.

These point inwards, so as to open a free passage for the blood into the right ventricle of the heart.

The pulmonary artery, which receives the blood from the same ventricle into the lungs, has also three valves, called, sigmoidæ, from their resemblance to the Greek letter sigma. These incline from within outwards, by which they hinder the blood from returning back again into the heart. The pulmonary vein has two valves, called, mitrales. These have the same office as those of the cava above described, being to hinder the blood from returning back again into the lungs. And the valves of the aorta, or great artery, called similunares, have the same office as those of the pulmonary artery, viz. to prevent the blood, by which it is detached into all other parts of the body, from returning into the heart.

The use of the heart is sufficiently evident from what has beenalready said in its description, the heart being the vital fountain which receives the blood from all the rivulets of the body, and dispenses it back again through its proper channels for the support and nourishment of every part.

For that purpose its structure is very different from all other muscles, especially those that move particular parts; for as these are partly fleshy, and partly tendinous, or have their fleshy fibres, and in tendons of a closer contexture, the heart on the other hand is altogether fleshy, and made up of fibres so exquisitely fine, and so closely compacted together, that it is by that circumstance endowed with all the force necessary for its functions, and its basis is the most compact of all its other parts, where probably its fibres have both their origins and insertions


a Young Mouth
1
4 Years Old
2
3 Years Old
3
an Aged Mouth
6
7 Years Old off
5
6 Years Old
4

But the most extraordinary property of the heart is its perpetual action during life, independent of any controul whatever, and in this it differs from all other moveable parts of the body, which are set in motion only by the will. All attempts, therefore, to account for this remarkable property must be fruitless, and physiologists must content themselves with the knowledge of the fact of its being the organ that circulates the blood, although they are ignorant of the source of the vital principle that sets it in motion.

Another extraordinary property in the heart, is its constant and unremitted action during the life of an animal body. This action, after it has once commenced, never ceases except at the moment of death, so that, in fact, the heart has none of those periods of rest which are enjoyed by the other muscles of the body, for its motion goes on incessantly, even during sleep, although it is somewhat more tranquil than at other times. When we consider the violent and excessive exertions to which horses are constantly exposed, either from the wanton caprice, or the avarice of mankind, it will not be thought surprising that the heart should be frequently liable to injury and disorder.

The diseases with which the heart is principally affected, are dropsy in the pericardium, or bag which contains the heart, and ossification, or the conversion of the auricles into a gristly and even bony substance.

These diseases are generally incurable, especially as they are, for the most part, brought on imperceptibly. They are frequently overlooked in the examination of dead subjects, but are very often discovered by those whose business it is to slaughter horses, as well as those who purchase the flesh for dog's meat.

ON THE AGE OF THE HORSE.

Most quadrupeds have some peculiar marks, or tokens, by which their age may be ascertained up to a certain period. In horned animals some perceptible alteration in the form and appearance of the horn takes place annually, by which their age may be calculated.

These, however, being ruminating animals, that is to say, animals that chew the cud,) differ from the horse in having no front teeth in the upper jaw. The horse has twelve front teeth; six in the upper and six in the under jaw; whilst the ox, the sheep, the goat, and the stag, have eight front teeth in the lower jaw, and none in the upper.

It is not easy to account for this peculiarity, except that it is connected with the action of chewing the cud, and may possibly, in some way or other, facilitate that action. The age, however, of the ox,

the sheep, and the goat, may be ascertained till the fourth year by the teeth, simply by their shedding them; but after the new teeth are all full grown, no criterion remains, because the teeth have no marks, or cavities, like those of the horse. There is also another very essential difference between grazing and carniverous animals in the disposition of the teeth. In the carniverous tribe, the jaws are completely filled with teeth all round, whereas, in the grazing tribe, there is a smooth space of some extent between the front teeth and the grinders. At about the middle of this space the horse has a tooth, which stands by itself, and is called a tush. There are four of these, two on each jaw. They are peculiar, however, to horses, mares having none, except in some very few instances.

This smooth space, which is called the bar of the mouth, has been supposed by some naturalists to have been a provision of nature to render the animal more governable by the bridle. That it has that effect must be admitted, but it is very doubtful if that was the original object of such a peculiar formation, since the same peculiarity is found both in the sheep and the goat, neither of which can reasonably be supposed to have been ever intended for a bridle.

The horse has forty teeth, viz. twenty-four back teeth, or grinders, twelve front teeth, or nippers, and four tushes.

The mare has but thirty-six, the tushes being generally wanting. The first that grow are the foal-teeth, which begin to appear a few months after he is foaled; they are twelve in number, six above and six below, and are easily distinguished from the teeth that come afterwards by their smallness and whiteness, not unlike the fore teeth of a man. When the colt is about two years and a half old, he casts the four centre teeth, viz. two above and two below, but the lower ones generally first. This is, however, attended with some trifling variation of time among different colts, as some do not cast them until they are three years old. The new teeth are easily distinguished from the foal-teeth, being much stronger and nearly double their size, and are called the incisores, or gatherers, being those by which a horse nips off the grass, when he is feeding abroad in the fields, or in the house gathers his hay from the rack. When a horse has got these four teeth complete, he is reckoned three years old.

At three years and a half, or in the spring before he is four years old, he casts out four more of his foal-teeth, viz. two above and two below, one on each side of the middle teeth; so that when the mouth is looked into, and the two middle teeth are perceived to be full grown, and none of the foal-teeth, except the corner teeth, remaining, you may conclude he is four that year, about April or May.

Some, indeed, are later colts, but that makes little alteration in the mouth. The tushes appear nearly at the same time with the four last-mentioned teeth, sometimes sooner than these, and sometimes not till after the horse is full four years old. When they are full grown they are round, or convex, on the outside, and hollow, or concave, on the inside, with a projecting ridge up the middle. When the tushes do not appear for some time after the foal-teeth are cast, and the new ones come in their room, it is generally owing to the foal-teeth having been pulled out before their natural time of shedding, by the breeders, or dealers, for the purpose of making the colt appear four years

old when he is only three, and with the view to render him more saleable, for when the teeth are pulled out, the new ones come sooner into their places; but this is not the case with the tushes where there is no succession. Hence they never appear before their natural period, although their pushing through the bars may be accelerated in some trifling degree by lancing, or cutting the gum just over the tooth. The surest way, therefore, to know a four-year old horse is by his tushes, which are then very small, and sharp on the top and edges. When a horse comes five, the corner teeth begin to appear, and are at first but just level with the gums, being filled with flesh in the middle. The tushes are also, by this time, grown to a more distinct size, though not very large; they likewise continue sharp and rough on the top and edges. But the corner teeth are now the most remarkable.

They differ from the middle teeth, in being more fleshy on the inside, and the gums generally look more red and raw on the teeth first shooting out, whereas the others do not appear discoloured. The middle teeth arrive at their full growth in less than three weeks, but the corner teeth grow leisurely, and are seldom much higher than the gums, till a horse is full five. They differ also from the other front teeth in this, that they somewhat resemble a shell, and thence are called the shell-teeth, because they surround the flesh in the middle, half way round, and as they grow, the flesh within disappears, leaving a distinct hollowness and openness on the inside. When a horse is full five, these teeth are generally about the thickness of a crown-piece above the gums, and at six they are full grown. The corner teeth in the upper jaw fall out before those in the under, so that the upper corner teeth are seen before those below; on the contrary, the tushes in the lower jaw come out before those in the upper. When a horse is six years old, the hollowness on the inside of the corner tooth begins to fill up, and that part which was at first fleshy, grows into a brownish spot, not unlike the eye of a dried garden bean, and continues so until he is seven, with this difference only, that the tooth is more filled up, and the mark, or spot, becomes faint, and of a lighter colour. These marks are to be found in all the front teeth, up to a certain age, viz. at five years these marks disappear in the two middle lower teeth and until these marks have disappeared, it is a pretty certain sign that the horse is not five years old, notwithstanding the growth of his corner teeth may have been hastened by pulling out the colt's teeth before their time. At six years, the marks of the two next lower teeth disappear, and at seven, up to eight, the marks of the lower corner teeth are filled up. At this period, also, the tushes become rounder and more blunt at their edges.

At eight, the marks are generally worn out, though some horses retain them much longer, and those who have not had experience, may, from this circumstance, mistake a horse of ten years of age for one of eight.

It is, therefore, easier to practice deception in the age of a horse, after he is seven years old, than before that period; for the tricks to make a young horse appear older than he really is, by pulling out the corner teeth before their time of shedding, may be easily detected, by feeling the bars where the tushes grow, for they may be felt in the

gums before the corner teeth put forth, whereas, if the corner teeth come some months before the tushes rise in the gums, we may reasonably suspect, that the corner teeth have been pulled out at three years old. When the marks are all out of the lower front teeth, it is generally supposed that no means remain to ascertain the age with any degree of certainty. A tolerable guess, however, may be given by looking at the front teeth in the upper jaw, which have marks in them as well as those in the lower jaw; and which marks do not begin to fill up until those in the lower jaw are all effaced. Thus, at eight years old, the marks in the two middle upper teeth begin to disappear; at ten, the marks in the two next; and at twelve, those in the corner teeth, after which period, there are certainly no means of forming any probable conclusion on the subject. It should, therefore, be remembered, that there is one year between the disappearance of these marks in each tooth in the lower jaw, whilst there are two years difference in those of the upper jaw.

After twelve, there are several visible alterations which take place, not only in the teeth, but in the general appearance of the head of the animal. The most conspicuous are the following. In the first place, the front teeth, before the age of seven years, are nearly perpendicular in their position, and meet exactly at the edges. But as the horse grows older, they become more horizontal, and the upper teeth project considerably beyond the under teeth. The upper corner tooth also forms an angle or hook over the edge of the under tooth, and this takes place from the surface of the upper tooth being larger than that of the under tooth, on which account it grows over in that part where it experiences no pressure from the opposite tooth. This is one of the most infallible signs of age whenever it appears, though the dealers sometimes file it away until it is square with the rest of the tooth.

In the next place, on examining the teeth of an old horse, they seem to be much longer than those of a young one. This does not arise so much from an increased growth in the tooth, as from the gums receding so as to shew more of the tooth than they did before. The tushes, also, are quite round and blunt, and the ridges of the roof of the mouth nearly disappear, so as to be lean and smooth instead of being irregular and fleshy. The colour of the teeth in an old horse changes to yellow, and sometimes to black. The head begins to look more lean and bony. The upper part of the eye, above the lid, becomes sunk and hollow, and grey hairs are interspersed about the forehead and ears. The lips are more wrinkled, and the under lip generally drops a little below the upper. Notwithstanding these alterations in the appearance of the animal generally take place in old age, still there are some horses that retain all the marks of middle age, by the freshness of their teeth, the boldness of the eye, and the vigor of their constitution, even until they are sixteen years old, or upwards.

There are various tricks practised by the lower class of dealers to make an old horse appear young. Thus, when the mark is filled up in the corner tooth after seven years old, they make an artificial one, by scooping out a cavity on the top of the tooth with a

graving tool, and afterwards burning it with a hot iron, for the purpose of giving it a black colour.

But the deception may easily be detected by any one who is accustomed to look into horses' mouths; for the heat of the iron draws the oil of the tooth to the surface, and gives it a yellowish appearance, very different from the natural mark; besides, they cannot restore the tushes to their original shape, nor the position of the teeth to their former inclination.

ON BLEEDING.

The operation of blood-letting, though often performed without any real necessity, is, nevertheless, a matter of considerable importance to the welfare of the horse, especially as very troublesome diseases sometimes take place in the jugular vein when it is executed in an unskilfull manner. With regard to the mode of performing the operation, the following observations, by Mr. Clarke, of Edinburgh, are so much to the purpose, that the author of the present work cannot do better than transcribe them. He says, "As horses are naturally timorous and fearful, which is too frequently increased by bad usage and improper correction, they require in some cases, particularly in this of bleeding, to be taken unawares, or by surprise, and the orifice made into the vein before their fears are excited. For this reason, the fleam and blood-stick have long been in use, and in skilful hands are not improper instruments for the purpose, although with many practitioners the spring fleam would be much safer, and on that account ought to be preferred. When a lancet is used, the instant the horse feels the point of it, he raises or shakes his head and neck, in order to shun the instrument before the operator has time to make a proper orifice, which frequently proves too small or too large; for this reason, those who have tried the lancet have been obliged to lay it aside. Many persons tie a ligature, or bandage, round the neck, in order to raise the vein, and that they may strike the fleam into it with the greater certainty; but a slight view of its effects in preventing this and its other consequences, will shew the impropriety of the practice.

"When a ligature is tied round the neck, previous to bleeding in the jugular vein, it is to be observed, that it stops the circulation in both veins at the same time; hence they

become turgid and very full of blood, insomuch, that they feel under the finger like a tight cord; and as the parts adjoining are loose and soft, when the stroke is given to the fleam, the vein, by its hardness and tightness, slips to one side, and of course it eludes the stroke; hence a deep wound is made by the fleam to no purpose, and this is sometimes frequently repeated. Unskilful people have likewise a custom of waving, or shaking the blood-stick before they strike the fleam, in view of the horse, whose eye is fixed on that instrument, and when they intend to give the stroke, they make a greater exertion; hence the horse being alarmed by its motion raises his head and neck, and a disappointment follows. The struggle that ensues from this circumstance prolongs the operation, the ligature at the same time being still continued round the neck, a total stagnation of the blood in the vessels of the head takes place, and hence it frequently happens that the horse falls down in an apoplectic fit. In such cases, the operator being disconcerted, generally desists from any further attempt to draw blood at that time, under the idea that the horse was vicious and unruly, although the very treatment the horse had just undergone rendered bleeding at that time the more necessary, in order to unload the vessels of the head in which the blood had been stagnated by the ligature round the neck. Therefore a ligature ought never to be used, as a moderate pressure of the finger below the orifice will always be sufficient to make the blood flow easily; but if the horse is lying on the ground, a ligature may then be necessary.

"But when the ligature is made tight before the orifice is made in the vein, and the horse happens to fall in an apoplectic fit, it may cause a blood-vessel within the head to burst, and death may be the consequence

"Another custom equally absurd is allowing the blood to fall in a dunghill, amongst straw, or on dry sand, so that no distinct idea can be formed of the quantity that is or ought to be taken away. In such cases, horses have dropped down insensible from the loss of too much blood, before the operator thought of stopping the orifice.

"For this, and a variety of other reasons which might be mentioned, a measure, as above observed, ought always to be used, in order to ascertain the quantity of blood that is taken away.

"In pinning up the orifice, some have a custom of raising, or drawing out the skin too far from the vein; hence, the blood flows from the orifice in the vein, into the cellular membrane, between it and the skin, which causes a large lump, or swelling, to take place immediately.

"This frequently ends in a swelled neck; a suppuration follows, which proves both tedious and troublesome to cure. In cases where a horse may be tied up to the rack after bleeding in the neck, pinning up the external orifice may be dispensed with; but when a horse is troubled with the gripes, or any other acute disease, in which he lies down and tumbles about, it is necessary that the orifice be pinned up with care, in order to prevent its bleeding afresh. As the jugular vein on the near side is commonly chosen for conveniency by those who are right-handed, the young practitioner should learn to perform on both sides of the neck. This he will find in practice to be not only useful, but sometimes necessary, as he may frequently have occasion to draw blood from

horses in very awkward situations; he will likewise find it useful in a variety of cases which it is needless here to particularise.

"The proper place for making the opening in the neck or jugular vein is likewise necessary to be attended to; for when the orifice is made too low, or about the middle of the neck, where the vein lies deep under the muscular teguments, the wound becomes difficult to heal, and frequently ends in suppuration, with a protrusion of proud flesh from the orifice, which, unluckily, is as unskilfully treated in the common method of cure, viz. by introducing a large piece of corrosive sublimate into the wound; this not only destroys the proud flesh in the lips of the wound, but also a considerable portion of the flesh around it. This is called by the common farriers, *coring out the vein.* It frequently happens that this corrosive application destroys the vein likewise, and sometimes violent bleedings ensue, so as to endanger the life of the animal. The most proper place for making the opening in the jugular vein is where the integuments are thinest, which is about a hand's breadth from the head, just below the branching off of the vein to the lower jaw, and which may be distinctly seen when any pressure is made on the main branch of the vein.

"In performing the operation with a fleam, the operator should hold the fleam between the fore-finger and thumb of the left hand; with the second finger he is to make a slight pressure on the vein, and before it becomes too turgid, or full, make the opening; the same degree of pressure is to be continued on the vein, till such time as the quantity of blood to be taken away is received into a proper measure.

"Another great error, which generally prevails in opening the vein with a fleam, is the applying too great force, or giving too violent a stroke to it, by which it is forced through the opposite side of the vein. Hence there is danger of wounding the coats of the carotid artery which lies immediately underneath. Gibson, in his treatise on the diseases of horses, mentions a case of a fine horse that was blooded in the plate-vein for a lameness in the shoulder, which was followed with a hard oval swelling about the size of a goose egg, which extended upwards on the breast, and also down the leg, attended with excessive pain, fever, deadness in the horse's looks, and all the other symptoms of an approaching mortification. In order to avoid the consequences sometimes attending these local operations in the breast, legs, &c. and as horses are more or less troublesome and restless, whereby accidents of this kind may happen, it will perhaps be adviseable in most cases of lameness to draw blood from the neck-vein only, where there is less danger of accident, more especially if a spring-fleam be used, for although it might be of some advantage in particular cases to draw blood as near to the affected part as possible, yet the bad consequences frequently attending it, seem to counterbalance any advantage that may be expected from it, especially as the quantity of blood drawn from the small veins is but inconsiderable, and of course no great benefit can be expected from it in horses when they are diseased.

"The principal object in drawing blood is to lessen its quantity, by which the remaining mass circulates with more freedom in the vessels; it likewise takes off the inflammatory tendency of the blood, removes spasms, and

prevents other bad consequences that may follow, especially in plethoric habits; and, it is always to be remembered, that when the signs, or symptoms, of a disease are taken from the motion of blood, the disorders arising from it depend upon its circulation being either increased or diminished; hence, therefore, all the changes which take place in the texture, quantity, and quality of the blood, are attended either with a diminution or an increase of its velocity.

"Although the cases which may require bleeding are numerous, yet one general caution is necessary, namely, never to take away blood but when it is absolutely necessary; for it is a fluid that may be easily taken away, but cannot be so easily replaced. Besides the practice of bleeding frequently, or at stated times, is exceedingly improper, as it disposes the body to become weak and relaxed. In bleeding, therefore, a due regard must always be had to the constitution, age, strength, &c. of horses, and the state, or habit, of body they are in at the time. Although blood ought not, in general, to be taken from horses on trifling occasions, when they may be said to be in health, yet when cases occur that do require it, it may not only safely but usefully be recommended, to take away a greater quantity at once than is usually done; for instance, from three to four quarts, according to the urgency of the symptoms at the time, the strength and age of the horse being also taken into consideration.

"For as horses are very subject to inflammatory diseases, and those that are of the spasmodic kind, and as bleeding plentifully relaxes the whole system in these cases, the taking away a small quantity of blood is in fact plying with the disease. The horse is then said to have been blooded, and that satisfies the owner and the farrier; time is thus lost, the disease acquires strength, and it may then be beyond the power of art to mitigate or to conquer it; hence the horse falls a sacrifice to timidity and ignorance. It is to be remembered, that inflammatory diseases, particularly when the bowels are affected, make a very rapid progress in horses, and if they are not overcome at the beginning by bleeding plentifully, the horse commonly dies in twenty-four hours of a gangrene or mortification in the intestines.

"Mr. Coleman, in the first part of the transactions of the veterinary college, speaks of the inflammation of the vein which sometimes succeeds bleeding in the following terms. 'Although,' says he, 'a vein is not strictly a circumscribed cavity, yet it has no communication with the air of the atmosphere, and when once exposed, if the parts, after the operation, do not unite by the first intention, the vein is liable to great mischief.'

"Whenever inflammation attacks the internal surface of veins from bleeding, or any wound, the disease is to be considered as of the same nature, and requiring the same remedies as the exposure of joints, or other cavities.

"The first symptom of inflammation and suppuration within a vein, is generally a small degree of swelling about the orifice, the lips of which soon recede from each other, and a little oozing escapes from the part.

"At other times, the swelling will be more considerable, attended with frequent hœmorrage, and where the swelling extends much above the orifice, the vein is frequently cal-

lous and enlarged as high as the head. This enlargement and hardness of the vein proceeds, in part, from the coagulable lymph filling up its cavity; and, in part, from the coats of the vein being thickened; and the lymph sometimes becomes organised, and firmly unites to the internal surface of the vein. In other cases, the coagulable substance does not unite to the vein, but acts as a foreign body on the whole internal surface of the vein.

Instances have occurred where lymph, many inches in length, has been taken from the jugular vein, and extended as high as the veins of the face, unconnected with its coats. Abscesses also form occasionally in the neighbourhood of the part diseased, sometimes with, at other times without any communication with the vein. Although the inflammation is seldom continued below the orifice of the vein, yet one instance occurred where the vena cava, and even the heart itself, partook of the disease. The remedies he recommends are stimulating oils applied to the tumour; and where suppuration has not taken place, applications of that nature sometimes succeed. But when suppuration and bleeding come on, the disease requires a very different treatment.

The course to be pursued under such circumstances, Mr. Coleman exemplifies in the following list of cases which occurred at the Veterinary College.

1st. A horse was admitted on the 30th of August He had been bled in the jugular vein on the near side of the neck six days before.

The orifice of the wound, at that time, was inflamed, and swelled to the size of a walnut. It also discharged and frequently bled. On further examination with a probe, the cavity of the vein was found opened The actual cautery, or hot iron, was applied to the lips of the wound, which immediately prevented any discharge of blood, or matter

On the 1st of September, suppuration again took place from the same orifice. The cautery was repeated, and succeeded as before. On the 2d, no discharge from the vein. The neck was fomented with warm water. On the 3d and 4th, no discharge. Fomentations as before. On the 5th, the wound discharged a small quantity of matter, and the cautery was again applied. The next day the animal quitted the infirmary as the swelling and inflammation had abated.

On the 10th the horse was again returned, and on enquiry it was found that, by some accident, the coagulum had been torn off, the discharge increased considerably, and the inflammation and swelling extended up the vein as high as the head. The cautery was again had recourse to, and the discharge ceased. The horse was bled from the opposite vein, and a dose of purging physic given, which operated the next day. On the 15th, the wound suppurated from the same orifice, and the cautery was repeated to a greater depth. On the 16th and 17th, no discharge. The tumour above the wound was blistered, and by the 18th was much reduced in size. On the 19th, the granulations protruded through the orifice, but no discharge. A small quantity of the powder of vitriolated copper was sprinkled on the part. On the 20th, a small orifice was observed in the centre of the wound, from which matter escaped. On introducing a probe, the cavity

was found to be superficial. A drachm of vitriolated copper, in a solid form, was therefore introduced into the wound, and a large poultice applied at night.

On the 22d, the neck was fomented with warm water, and a common poultice applied at night. On the 23d the inflammation and swelling gradually abated, but the orifice sloughed and again suppurated. The cautery was repeated as before. On the 24th, a small discharge came from the orifice, and the cautery was again repeated. On the 25th, the surface of the wound sloughed, and healthy granulations appeared.

The wound was afterwards dressed with a simple ointment, and the granulation sprinkled with blue vitriol.

Under this treatment the horse was discharged from the college on the 9th of October, radically cured.

A coach-horse had been bled in the jugular vein, on the near side, about a week.

On examination it was found to be inflamed and swelled considerably in the direction of its course towards the head, attended with frequent discharges of blood from the orifice. A large swelling had also taken place about the division of the vein above. The vein below the orifice was not inflamed, or in any degree diseased. The tumour was ordered to be blistered, and the actual cautery applied to the orifice. For three days successively no discharge of blood, or matter, came from the orifice. But the abscess still continued to increase, and the matter being formed, it was opened, and discharged copiously.

A piece of loose coagulum, about six inches in length, was taken out at the same time from the orifice of the vein. A probe being introduced, a communication was discovered between the vein and the abscess. This circumstance proved favourable to the cure, for as no hæmorrage had taken place from the abscess, there were just grounds to believe that the pressure of the abscess had united the inner coats of the vein above, so as to prevent all communication between the vein above and the vein below. The disease was therefore treated as a common abscess.

A seton was introduced up the sinus to communicate with both openings, and retained there about a week. It was then removed, and by the application of common dressings, the animal completely recovered. The vein being united and rendered impervious above, the inflammation and hæmorrage both ceased.

In another case the jugular vein of a horse had been opened about a fortnight. The vein was considerably inflamed from the orifice to the head, attended with suppuration and frequent bleeding. The external skin in the direction of the vein downwards, in consequence of the application of some corrosive medicine, was in a state of ulceration from the orifice to the chest. The hot iron was applied to the external lips of the wound. The hæmorrage and discharge ceased. A dose of purging physic was given, which operated in thirty-six hours. A blister was also applied to the tumour above the orifice of the vein, and the discharge occasioned by the blister diminished the enlargement.

On the 22d of May, the external orifice opened and discharged matter, but no blood. After the operation of the blister, the parts were fomented with warm water. On the

26th, it was found necessary to repeat the cautery to the centre of the orifice. On the 28th, the tumour near the head being soft, a small opening was made, which discharged largely, but appeared to have no communication with the vein above or orifice below.

Fomentations and poultices were employed, and the cavity became gradually filled with new granulations. On the 2d of June, a small quantity of the powder of vitriolated copper, to prevent an improper growth of the granulations, was applied. The same treatment was continued until the 11th of June, when the orifice of the vein completely closed.

The wound above gradually healed, and, on the 17th of June, the horse was discharged perfectly cured.

On the 20th of August, another horse was brought with a swelling in the jugular vein in consequence of bleeding, and which was attended with a very considerable degree of inflammation. On the 2d of September, the swelling having increased, attended with frequent bleeding from the orifice, Mr. Coleman was desired to see the horse. On examination, it was discovered that the orifice of the vein had not closed; but the coats of the vein below had united, and at this part the cavity was impervious. The vein above the orifice continued open. The actual cautery was therefore applied to the orifice, and fomentations and poultices were applied to the tumour.

The discharge from the orifice not ceasing, the cautery was repeated. On the sixth, seventh, and eighth days, fomentations, and poultices were continued. On the 10th, the orifice of the vein not being closed, the cautery was again applied, and succeeded by fomentations and poultices as before. On the 14th, the cautery was repeated. On the 17th, a dose of purging physic was given. On the 21st, the tumour was blistered, and the surface of the wound dressed with simple ointment.

The part was afterwards blistered several times, and, on the 2d of October, the disease was totally removed. The foregoing is a detail of the practice adopted by Mr. Coleman at the Veterinary College, and according to the results here stated, it appears to have been generally successful. But the practice seems to apply principally to that state of disease, where the inflammation has made such progress as to have produced suppuration and abscess.

Whenever the disease has reached this extent, it is almost invariably attended by the loss of the jugular vein, either by its sloughing away, or becoming obliterated by its sides closing together by adhesive inflammation, and although the loss of the vein does not affect the horse's existence, yet it is productive of inconvenience when the horse is turned to grass, in which case the blood does not return from the head so freely as it ought to do, and a kind of apoplectic fulness takes place.

The loss of the vein must also be injurious to the horse when hunting, or when employed in any violent and rapid exercise, in which case, also, the circulation of the blood will be impeded. For these reasons it is evident that it is a matter of the first importance that the disease should, if possible, be removed in its infancy. It generally arises from the operation being performed in a bungling manner, such as striking the fleam into the neck two or three times without hitting the vein, or it may arise from pinning up too

large a portion of skin, and tying the tow too tight around it.

In either of these cases inflammation may ensue, which, if not subdued very speedily, may produce ulceration and abscess. On the first appearance, therefore, of swelling in the part, the pin should be taken out, and the part fomented with warm water four or five times a-day, and in the intervals the following lotion may be used, viz.

Golard . . . . 1 drachm
Spirits of wine . . half-a-pint,
to be put in a quart bottle, and filled up with water.

This treatment, if regularly persisted in for a day or two, will generally remove the swelling and inflammation, but if the horse is fat, and considered to be foul in his body, a mild dose of purging physic may be given with advantage. It frequently happens that horses which run in mail or stage-coaches, are injured in the neck after bleeding, by the rein of the bridle rubbing against the pin which closes the orifice, and indeed instances have occurred of horses which work in the night having the pin forced out, and bleeding until they dropped down before the accident was discovered. But, at all events, a carriage-horse should not be worked on the same day on which he is bled, because the pressure of the collar in drawing always fills the vein by stopping the circulation of the blood, and either prevents the orifice in the vein from closing and healing, or else bursts it open afresh after it has barely united.

When, however, the inflammation and swelling do not subside, and matter forms, the edges of the wound may be dressed with a small quantity of butter of antimony, applied with the point of a feather, which may be used once in three days. At the same time a poultice of bran may be applied, by inclosing the poultice in a flannel bag, and tying it easy round the neck. This will lubricate and soften the skin, and will tend to keep down the inflammation. The practice of the common Farriers, in this case, is to introduce a small piece of corrosive sublimate, or else to dress the part with aqua-fortis, either of which are very dangerous, because they destroy all the parts which they touch, and the vein being eaten away also, the horse is in danger of bleeding to death, except the vein is tied by a ligature above the orifice.

Having gone thus far into the treatment of diseased necks, arising from bleeding, it will be proper to point out what are the cases in which bleeding is required, for the common practice of resorting to it at particular seasons of the year, whether the animal requires it or not, is not only absurd, but is frequently detrimental.

The cases where bleeding is required, are violent bruises, or strains in the muscular and tendinous parts where they are attended with much inflammation; also large wounds, where there is much laceration without much loss of blood. It is likewise proper in all cuticular disorders or eruptions on the skin, in large swellings on the body or legs arising from a plethoric state; in all deep punctures, when the horse shews symptoms of great pain, and in swelling of the legs, or heels, when attended with much inflammation.

Bleeding is sometimes the speediest method of giving relief in the beginning of

inflammatory fevers, to which horses are very liable; it is also necessary, in all violent acute pains, as in the gripes, or colic, stranguary, or suppression of urine; in rheumatic complaints, where the pain causes stiffness, or lameness, and which frequently shifts from one limb to another, or when it affects the neck, and occasions that stiffness and contraction of the muscles, which is commonly called the chords, in inflammation of the eyes, or palate of the mouth, the latter of which is called the lampas, when the horse cannot eat his food on account of the tenderness of the parts—in all recent colds, attended with defluxions of the eyes; in recent swellings of the glands about the throat, jaws, &c. in inflammation of the liver, the lungs, the pleura, stomach, intestines, kidnies, bladder, or any of the internal viscera. In apoplexy, vertigo, or giddines, and in all disorders where the head seems affected; in eruptions of the skin, called surfeit; in full habits of body, where proper exercise has been neglected, and when a horse breathes with difficulty on the least exercise. On the other hand, bleeding is to be avoided in cases of all inflammatory swellings after matter has formed. It is also to be avoided in all cases of extreme lowness, or weakness, produced by fatigue, or disease, or after strong evacuations by purging, or scouring, or diabetes, or excessive staling.

Bleeding is also improper during the time of a horse's moulting, or shedding his coat; in fact, it should never be practised except some more substantial reason can be given than the mere plea of custom at certain periods of the year.

In the foregoing observations on diseases of the jugular vein from bleeding, a full detail has been given of the use of the actual cautery, as practised at the Veterinary College. It will, therefore, be proper to mention in what other cases it has been used with success. In all accidents, where the cavity of a joint has been opened, as sometimes happens in broken knees, or in injuries of the hock-joint, where the synovia, or joint-oil, as it is called, is discharged, the application of the hot iron has been generally successful in stopping the discharge and healing the wound. Instances have sometimes occurred where common Farriers, who have not understood the nature of wind-galls and thorough-pins, have opened those swellings with a lancet, the consequences of which have been extremely dangerous. It will, therefore, be necessary first to describe the anatomical conformation of what is called wind-gall, but which is in fact a relaxation and enlargement of the bursæ mucosæ.

These bags, or cells, contain a fluid resembling what is denominated joint-oil, and are situated round the tendons and the bones of the joint.

These are particularly observable in the hock-joint, and in the fetlock, or pastern joints. Their use is to moisten the surfaces of those parts, and to prevent too great friction during the motion of the limbs.

In very young horses, that have not had much work, these bags are scarcely visible, and are only to be discovered by dissection; hence some have supposed that they are produced only by disease. But in horses that have been hard worked they become very large and perceptible, and are then distinguished by the name of wind-galls. The term—wind-galls, originated most probably from the erroneous idea that they were filled

with air, by their yielding to the pressure of the finger. From this mistaken notion some Farriers have supposed that the best method of removing them was by puncturing the swelling with a lancet, for the purpose, as they supposed, of letting out the wind.

The injurious consequences of this practice will be shewn in a subsequent part of this chapter. When these puffy swellings take place in the hock, they are called thorough-pins, and when situated in the anterior part of the hock, they are called bog-spavins.

The first have been called thorough-pins, from the tumour running through the hock; and the latter, bog-spavins, from being seated near the part where the bone-spavin generally takes place. The first effect which takes place on opening these swellings is the discharge of the fluid contained within them, in consequence of which the swelling immediately disappears. But if the wound does not unite very speedily after the operation, great inflammation and irritation ensue, and although the wound should heal without any of these injurious circumstances, still the fluid increases in quantity, and the bag, or swelling, becomes as full and as much distended as before.

This operation, therefore, is not only useless but dangerous, as the consequent inflammation is sometimes so great as to endanger the life of the animal. Farriers have sometimes opened these swellings with a red-hot iron made pointed at its termination. This mode has been found less hazardous than that of the lancet, because the coagulable lymph, which is thrown out at the edges of the wound, forms a kind of glue, and contributes to the closing and healing of the orifice more rapidly than by any other means. Setens have sometimes been recommended, and passed through these swellings with a view to create inflammation and fill up the cavities with granulations.

But the irritation is greatly increased by this practice, and if the horse outlives it, the internal part of the bag is either filled up with a fleshy substance, or else is entirely obliterated and destroyed by the adhesive inflammation of the different surfaces with each other; and there being no more fluid formed in the part, for the purpose of lubricating and moistening the surfaces of the bones and ligaments which compose the joint, a degree of stiffness ensues, and much pain and uneasiness after a hard day's work. When these capsules are opened by accident, the inflammation is generally more violent, and the effects more dangerous; and as it has not been generally understood, that exposing the cavity of joints to the action of atmospheric air is attended with more trouble and danger than is the case with wounds in muscular parts of the body or limbs, proper means of relief have not been discovered, nor resorted to by the generality of practitioners.

The following case, which came under the observation and care of Mr. Coleman, will serve to elucidate the benefit of the hot iron in cases of this description. Mr. Coleman was desired to attend a horse of Lord Jersey's. On examination he found that one of the mucous capsules between the flexor tendon, or back sinew, and the long ligament which supports the two sesamoid bones, had, by an accident, two days before been opened. The leg was considerably enlarged and inflamed, even above the knee, attended with consi-

derable discharge. The actual cautery was applied to the surface of the wound, and fomentations and poultices to the leg. A purgative was also given. In three days the discharge of synovia again returned, the cautery was therefore repeated, and in less than a fortnight the discharge totally ceased. The leg, however, continued swelled and inflamed, and the horse, on the 25th of May, was admitted at the Veterinary College. A liquid blister was applied from the fetlock-joint upwards to the bend of the knee, and a mild diuretic given every other morning for a week. When the blister had ceased to discharge, to keep the parts moist, and preserve the hair, a cold poultice of bran and water was ordered, and a second dose of physic, and by the assistance of another blister, and bandages, the horse was discharged on the 22d of June, perfectly sound.

The foregoing remarks apply only to cases of wind-galls which have been opened either by accident, or injudiciously, with the intention of reducing them by letting out the fluid or synovia. The best and safest mode of treating wind-galls is by repeated blisters, and afterwards bandaging the part, applying a piece of thin sheet-lead immediately over the swelling within the bandage. These swellings, or wind-galls, generally arise from the horse being worked hard when young, and before his joints have acquired sufficient strength and firmness. The common form of the pavement of the stall, which is generally up-hill towards the manger, contributes also in a very material degree to increase the tendency to this disease. It is obvious, therefore, that a level standing must be the most natural as well as the easiest to the animal.

ANTICOR, OR SWELLING OF THE BREAST.

This disease takes its name from the French, "*anticœur,*" on account of its being near, or before the heart. The signs of it are an enlargement of the breast, which sometimes is so violent as to extend upwards towards the throat, and to threaten suffocation.

The animal droops his head, refuses his food, and indeed cannot stoop his neck so as to reach the ground with his mouth, for the purpose of collecting grass, or hay. He faulters in his fore-legs whilst walking, and trembles with his whole body. It is said that English horses are not so subject to this disease as those of France and Spain, and this may possibly be the case from difference of climate.

This disorder may proceed from hard riding, exposing a horse to cold, and giving him cold water to drink when he is hot, or

from full feeding without sufficient exercise. If the swelling is not speedily reduced, it becomes anasarcous, or dropsical, and is then called the water-farcy. The cure should be attempted by early and copious bleeding, to abate the inflammation, and clysters should be given repeatedly.

The following purge may also be given, viz.

Aloes Barb. . . . 8 drachms
Castile soap . . . 2 drachms
Ginger . . . . 1 drachm,
in a ball.

This ball to be given with the usual precautions of bran-mashes, and water with the chill off.

When the ball has ceased to operate, the following may be given once in forty-eight hours, viz.

Emetic tartar . . . 2 drachms
Venice turpentine . . half-an-ounce,
Liquorice powder sufficient to make the ball of a proper size.

The swelling may be fomented with bran and water as hot as the hand can bear, and this may be repeated every three or four hours. If the swelling yields to the impression of the finger, and a hole remains, it is a sign that the swelling is dropsical. In that case a fleam may be struck into the skin in four or five places, at some distance from each other, and on the lowest or most depending part of the swelling, and from these punctures a serous discharge will take place and continue to ooze out for a considerable length of time, especially if the fomentation is continued. This discharge will materially assist in the reduction of the swelling.

If, however, the inflammation has been so acute as to form matter, it may be ascertained by the part where the matter is formed being softer than the rest, and this may be known by handling the swelling all over. In this case, the abscess may be opened by a lancet in the most depending part, and after the matter has been squeezed out of it, the mouth of the wound may be kept open by pledgets of tow dipped in the common digestive ointment of yellow basilicon. The dressing may be removed every day, and fresh pledgets applied until the abscess begins to fill up at the bottom; and when that process has taken place, the dressing may be reduced in quantity in proportion as the cavity closes. Should any proud flesh arise at the edges of the wound, a little burnt alum, or blue vitriol, may be applied occasionally, unless the surfaces are smooth, and of a healthy florid colour. But if, on the other hand, the swelling, in the first instance, increases very rapidly, and there is no tendency to suppuration, or forming of matter, the bleeding must be repeated to the quantity of four or five quarts, and the fomentation applied once every hour

The swelling sometimes runs along the belly towards the sheath, which part also increases in size. The treatment, however, should be the same as in the other case.

RUPTURE.

This disease arises from the muscular and tendinous parts of the belly giving way, so as to permit a portion of the intestines to come through to the skin. Ruptures may happen in different parts of the belly, but they are commonly confined to two, viz. the umbilical or navel rupture, and the other where the guts fall into the scrotum, or bag, which contains the testicles. Gibson relates that he once saw a Spanish horse that was ruptured, where the swelling was so large that the scrotum dropped down as low as his hocks.

This circumstance, he says, rendered the cure impracticable. Horses, however, from the horizontal position of their bodies, are not so subject to ruptures in the scrotum as the human race. He says he had also seen a gelding, where probably some part of the gut, or peritoneum, had made its way through the vaginal passage into the membranous parts of the sheath on the right side, for the omentum, or caul, seldom reaches so low in a horse, his continual horizontal motion throwing it forward in wrinkles.

The swelling was about the size of a goose-egg, a great part of which might be thrust back with the finger into the cavity of the lower belly, but it immediately returned in the manner of a flatulent tumour, and, perhaps, there might be some portion of air along with it. The cure was never attempted, because it was little or no hindrance to the horse in his business, the swelling being generally larger when he stood still than when he worked. But the most common ruptures are more upwards, and proceed from strains in working, or from being staked, or gored by bullocks, violent kicks from other horses, leaping over gates or fences, all of which sometimes divide the muscles of the lower belly, and frequently without piercing, or tearing, the skin; whereby a portion of the intestines, with a part of the peritoneum, and when the wound happens to be forward, part of the caul may also be lodged where these muscles are separated and divided, and thereby cause a swelling of a proportion and size equal to the rent made in the part.

A rupture may sometimes take place from the brutal custom of carmen, and others, who have the care of horses, kicking them on the belly with their heavy nailed shoes.

Gibson also mentions a case of a fine Flanders mare, that had a rupture near her navel, of a considerable size, which, however, did not prevent her working; but as it

grew larger it became troublesome, and a surgeon of that day, mistaking it for a fleshy substance, and of the nature of a wen, was desirous to have it removed by excision, for it felt solid whilst she stood upon her legs, which might be owing to a part of the caul, which is always rolled forwards in working horses, and along with this, an adventitious growth of flesh, caused by the rending of the muscles and membranes; for when she was thrown upon her back, part of the substance went inwards, and plainly discovered her malady to be a Rupture. He states, also, that he had known some few instances of umbilical ruptures, that have been caused by rowels in the belly, when they had been cut too deep, and, perhaps, were afterwards neglected. He had known also a horse, with a Rupture of that kind, perform a journey of several hundred miles, without any great inconvenience, only that he always went sluggish at his first setting out, but more cheerful after he had emptied himself.

Such a defect, however, must sooner or later render a horse useless. The most common Ruptures are those which push out on the sides of the lower belly, where the tunica vaginalis passes through the rings of the muscles, with the spermatic vessels, into the scrotum, and in geldings they seldom extend beyond the first ring, which is a little way above the groin; but, when they happen on the sides of the flank, they are generally owing to such accidents as have been before mentioned. They generally project about the size of a man's fist, and are fullest when the horse stands still in the stable, especially after feeding and watering; and in broken-winded horses they rise and fall with the motion of the flanks. They are soft, and yield to the pressure of the hand, and in most of them the vacuity may be felt through which the intestines make their way to the skin. But as there is no absolute cure to be expected in such cases, the safest way is to feed moderately and in small quantities, with small draughts of water, and to use such horses gently.

In all beginning Ruptures, a bandage should be applied, if possible, so as to prevent the intestines from pushing through the part where the muscles have given way. It is probable, also, that a blister might be laid upon the part with good effect.

Gibson relates another case where a very fine horse died of a Rupture. This horse belonged to a person of distinction, and was abroad with our army in Germany and the Netherlands. He received a hurt whilst he stood at picquet, along with some other horses, yet went through his business very well for the space of two years, notwithstanding that accident, but, after a hard day's hunting, was taken with the gripes, of which he died. On examining his abdomen, the ring through which the tunica vaginalis passes was torn nearly one half from the flesh, and lay across the orifice, which tied up a duplicature of the colon so tight that nothing could pass through it, and this was evidently the cause of his death.

The above case was most probably strangulated hernia, which frequently occurs in the human being; and it shews, that in cases of gripes, it is worth while to examine the scrotum with the hand, as the animal might, in many cases, be relieved by returning the gut.

ON ABSCESS.

Local inflammations, except they are dispersed by the usual methods of abating the circulation of the blood by bleeding and purging, or except mortification takes place, generally terminate in suppuration, producing what is called Abscess. The signs of approaching suppuration are a continuance and increase of all the symptoms attendant on inflammation, in defiance of the endeavours used to disperse it; a greater elevation and more evident circumscription of the tumour, and lastly, rigor and cold shiverings, all of which are certain indications of the formation of an Abscess.

Some have supposed that the matter, or pus, in an Abscess is produced partly by an alteration made in the fluids of the part, and partly by the breaking down of the over distended capillary vessels, the dissolution of the fat, and of other substances about the tumour, all which are said to be blended with the altered fluids of the part. Others have supposed that suppuration is a kind of fermentative process carried on in the fluids of the part affected; while others, again, consider it to be a secretion of a peculiar nature. But whatever may be the mode of this fluid being formed, the nature of it, when once formed, is a circumstance to be determined by our senses.

Healthy matter is a cream-coloured, blanc homogeneous fluid, devoid of smell. This, however, relates only to matter in a sound state; but it may become altered or acrimonious in its nature, when it certainly cannot be so inoffensive a fluid. It is frequently found, also, mixed with blood and other fluids, when it loses its cream colour, and becomes of a dark, dirty, brown, hue, in which case it is called a purulent sanies. In other instances it loses its consistence, is much thinner than it ought to be, its colour inclined to yellow, somewhat resembling serum, and in this state it is termed *ichor*.

Abscesses may be divided, with respect to their situation, into internal and external. We call them internal, when they affect the cavity of the head, of the chest, of the belly, or of any of the joints; external when they are situated on any of the outer parts of the body. The external may be again divided into the deep seated, or such as are under the fascia of the muscles; and superficial, such as are situated in the cellular or adipose membrane, or among the common integuments under the skin; which division will be found to require a considerable difference in their treatment. Abscesses, with respect to their nature, may be distinguished; first, into abscesses of the glands, which may take

place in any of the lymphatic glands throughout the body of an animal; and, secondly, into critical Abscesses, or such as happen after an acute disease, and supply the place of that critical resolution, by which the disease in its natural progression should have been removed. When it is ascertained that matter is collected in any part, and forms what is called an Abscess, that fluid must be considered as an extraneous body, and therefore the first thing to be done, is to procure a speedy vent for it.

It should be, however, a general rule not to make an opening till we are perfectly sure that matter is formed; and in many cases not till we are certain of the Abscess being come to maturity, that is to say, not till it appears that the increase of the disease is stopped, and all the matter which we may suppose would be formed in the tumour is already collected there.

It has been already said, that when matter is forming in an Abscess, the progress of the inflammation is increased, the tumour becomes more elevated and circumscribed, and shiverings take place; and, lastly, the fluctuation of the matter is evidently felt on pressing the part with the fingers.

This holds good with respect to those Abscesses particularly that are seated in the superficial part of the body, in the cellular or adipose membrane; but in deeper seated Abscesses, those signs are not very evident.

Habit, therefore, must go a good way in assisting the veterinary surgeon to form a conclusion. By frequently seeing and touching deep-seated Abscesses, he will become sensible of the fluctuation, though deep. He must not, however, fail to attend particularly to the mode of their formation and progress.

Whenever a soft tumour, though not having all the common signs, shall have been formed with great pain, and when it has come on in consequence of some external violence, or some acute distemper, there is good reason to conclude that matter is, at least, forming in the part. But there seems to be one further point necessary to be considered, and that is, by what criterion we shall judge whether the matter in these deep-seated Abscesses be completely formed, or, in other words, whether it be the proper time for giving vent to it. And here the veterinary surgeon must constantly bear in mind this maxim, that the animal will shew signs of greater pain and fever while the matter is forming than when it is formed. If, therefore, after the aforementioned symptoms attending a tumour, and particularly after the shiverings, a remission of the violence of the symptoms should be perceived, without any sensible diminution of the bulk of the tumour, or rather, perhaps, with an increase of it, it may then be concluded, that matter is completely formed.

This rule, however, though very extensive, is not precisely applicable to every case; since, when we come to consider the treatment of each particular Abscess, we shall find one or two instances in which we have scarce any other criterion to judge of the existence of matter, except from the violence of the pain, and hardly any other motive to determine us, as to the necessity of making a speedy opening in the part. When it is thoroughly ascertained that matter is formed, the next thing to be considered is the mode of giving vent to it. This may be done in three ways, by nature, by incision, and by a seton, all of which it may be proper occa-

sionally to adopt, according to the different situation or nature of the Abscess. In all superficial abscesses seated in the cellular, or fatty membrane above the fascia of the muscles, particularly if they be not of any considerable extent, in general, there can be no harm in leaving them to nature, so as to let them burst of themselves.

The best application to an inflamed Abscess, advancing to suppuration, is something of an emollient kind, that shall keep the part as supple and easy as possible. Poultices of bran, or linseed powder, should be used, and kept on the part by proper bandages, which should first be well soaked in water.

In these superficial Abscesses the same application may be continued after the tumour has burst, and if there be any hardness existing in the surrounding parts, which does not give way in a few days to emollient poultices, the addition of a small portion of mercurial ointment, spread on the surface of the poultice, will greatly assist in softening it. This plan should be continued till all the matter is evacuated, and all the hardness and inflammation are dispersed, when it may be proper to lay aside the emollients, to cover any little sore that may remain with a pledget of basilicon, and to make use of pressure by bandage, to hasten the consolidation of the parts.

If the seat of the Abscess be in the glands, near the skin (which is also a superficial Abscess, it may be necessary to make use of more stimulating medicines, for in these cases the suppuration is generally very tardy, and requires to be quickened. Poultices of bran, boiled turnips, and lilly roots, with a proportion of turpentine, answer this purpose.

But if the superficial Abscess be of any extent, we shall find that the opening made by nature will not be sufficiently large to evacuate the matter. There will, on that account, be a necessity of making an artificial opening, and the best mode of doing this is by a free even incision, with a clean cutting knife. The opening should be made in the longest, not the longitudinal axis of the tumour, unless that should prove the longest, which is seldom the case, for, in these swellings, the transverse axis is usually the longest.

This kind of Abscess, when it requires an opening, on account of its size, may likewise be punctured as early as the matter is formed, and although there should be some little hardness, it need not prevent the operation, for that will easily be resolved in the course of the cure. In general, where it is necessary, from the size of the Abscess, to open it, the sooner the opening is made the better, as it puts a stop to the progress of the disease, and prevents the skin from being thinned to a considerable extent so as to occasion the subsequent loss and destruction of it.

But when the Abscess happens in the superficial glands, it is much better, if possible, never to open it by artificial means; because, as the cure of the distemper depends upon the melting down of the whole substance of the glands, the longer the matter is suffered to remain in the part, the more completely will this effect be obtained.

As in the superficial Abscess, which is not glandular, early opening is to be recommended, in order to stop the progress of the disease, so, in the glandular Abscess, it ought not to be practiced until the whole of the

diseased part is thoroughly dissolved and converted into matter.

When the glandular Abscess requires opening, it is preferable to do it by introducing a seton which keeps up a sufficient degree of inflammation for the purpose just mentioned, and so as not to permit the surface to heal before all the diseased and deeper-seated parts are destroyed.

In the deep-seated Abscess, or that which is under the fascia of the muscles, where there is in general no affection of the skin, if the tumour does not advance kindly to suppuration, instead of the poultice recommended in the other Abscess we may use with propriety, and with good effect, any of the warm stimulating liniments, such as camphorated spirits of wine, or an infusion of a drachm of cantharides, in two ounces of spirits of wine, may be rubbed on the part affected. But in these deep-seated Abscesses a very different mode of treatment must be pursued from that which has been just recommended for the superficial Abscess. In the latter, although when an opening is required, it may be useful to have recourse to it early, yet no great danger can attend a little delay, especially as some of them might be left to burst of themselves, but in the deep-seated Abscess, however small the extent of it, not only the case can never be cured without an artificial opening, but it is likewise of the utmost consequence that this opening should be made as soon as the veterinary surgeon's knowledge and penetration lead him to judge, by attending to the circumstances already mentioned, that the matter is actually formed.

The nature of the parts surrounding the matter is this. In the fore part of the tumour, there is a strong inelastic, tendinous expansion, forming a considerable resistance to the distending power of the fluid within, so that until this resisting fascia be stretched to such a degree as to break, the matter cannot possibly come forward to the skin. But the back part and sides of the Abscess are of a very different nature; they consist either of soft muscular fibres, connected with the yielding cellular membrane (substances which ought either to be destroyed by the pressure of the incumbent fluid, or to transmit that fluid through all the interstices of muscles, so as to form holes or sinuses for the matter, which extends the mischief to the neighbouring parts, or perhaps diffuses it through the whole of the limb) or else these parts may be thin membranes, as in the instance of an Abscess under the fascia of the muscles of the belly, where, sooner than the strong tendinous expansion will burst, the matter will be more likely to pierce the peritoneum, and evacuate itself into the cavity of the abdomen or belly, where it must generally prove fatal. Or, lastly, the matter may be seated near the surface of some bone, where, if it be suffered to remain, a caries may be the consequence. From all these circumstances, the necessity of making an early opening will appear; and it will likewise be evident, that the opening should be made by incision. It is proper that these deep-seated Abscesses should be opened very largely, and that the fascia covering them should be freely divided, in order that the operator may get fairly at the bottom of the Abscess, so that if there be any sinuses running among or between the interstices of the muscles, he may either be able to lay them open, or by tracing the

direction in which they run, make counter openings wherever they may be required.

In the inside of most Abscesses, there are portions of the cellular or adipose substance, or perhaps of separated coagulable lymph, which do not make part of the sides of the cavity, but run through the middle of it, forming so many little bars of flesh, passing across from one side of the Abscess to the other. These must be searched for with the finger, and wherever they are found they must be cut through with the knife.

Sometimes they are met with of considerable thickness, and much indurated. Nor should it be conceived, though this rule of the early opening of the deep-seated Abscess is founded on theory, that it is wholly unsupported by practice. On the contrary, by opening these Abscesses early, they have sometimes been cured, though extremely large, and containing very large quantities of matter, in a month, or six weeks; while other tumours of this nature, which, from their slow progress in the early stages, have been either neglected by the owner, or suffered to come forward or ripen, as it is called, have kept the animal six months under treatment, during which time he may have been in imminent danger of losing his life. This tedious prolongation of the complaint has been entirely owing to the matter being suffered to remain longer in the part than was necessary, by which sinuses have been formed, the number and direction of which it was at first, perhaps, impossible to discover, and which, having manifested themselves with painful and aggravated symptoms in the course of the cure, have at length required a separate and particular treatment. In all cases when once matter is formed in a tumour, it may be considered as ripe enough, and therefore fit to be opened.

But this rule of opening deep-seated Abscesses as early as possible is not without its exception. The only circumstance, however, which may be said to form a general exception arising from the nature of the disease, is in the case of critical abscesses, or tumours, formed to carry off the remains of something morbid from the system.

Hence nature, exhausted by the violence or continuance of the disease, and exerting her last efforts to expel the enemy from the constitution, is sometimes deficient in power to produce that degree of inflammation sufficient to prepare or secrete the fluids in a proper manner, so as to form well concocted and healthy matter. These critical Abscesses, though occurring very rarely, either in the horse or other quadrupeds, from the simplicity which uniformly characterises the diseases of the more imperfect animals, are nevertheless to be met with occasionally, and may be known by their happening after signs of fever, or other general indisposition and weakness have existed for some time. It is evident, therefore, that these should not be opened too early, as nature might thereby be disturbed in her operations, and might never after be able to execute them completely.

Vent would be given to crude, unconcocted, unprepared fluids, as it were, and only carry away a part of what the constitution wanted wholly to get rid of.

It is most adviseable, in these cases, to wait till the inflammation appears to be raised pretty high, and till the disease of the habit seems to be all transferred to the part, and this an accurate observer may distinguish in

the change from a very morbid and sickly, to a more healthy and promising state of general health, whilst, at the same time, the swelling advances. In these critical Abscesses it is best, therefore, to wait to observe the turn and progress of the disease, unless there should be some circumstance of material consequence which indicates a contrary intention, as when there is reason to apprehend that the matter may make its way either into the cavity of the thorax or abdomen, or when it may injure some part of consequence. There may be some cases likewise when the critical suppuration is going on very slowly, to the utmost hazard of the animal's life; and when the part seems to require an additional stimulus. To such a kind of slow critical tumour, a blister may be applied, or we may even venture to let out some of the matter by passing a seton (if that be practicable) through the Abscess, which, by long continuing to discharge, may expel he disease.

It is also another general rule in the treatment of Abscesses, to lay open all the sinuses and cavities we may find belonging to them. However judicious and salutary this practice may be, there are some cases in which it is needless, and others where it is impracticable. For instance, it is scarcely ever necessary to open superficial or cutaneous sinuses, whose direction is upwards, from which the matter may be readily expressed, and which may afterwards be cured by proper compress or bandage. If it should so happen that the bottom of the sinus is situated in a depending part, and the opening of it above when it may be impossible to force out the matter by compress and bandage, it becomes absolutely necessary either to lay open the sinus through its whole extent, or to open the bottom of it; and pass a seton through the rest.

When these sinuses are neglected, they become fistulous, and require in some respects a distinct treatment. Nor is it, in general, necessary to lay open Abscesses, the opening of which is in a depending part, for in these the matter, finding a ready issue of itself, the sinus will soon be closed. Neither is there, generally, any necessity for opening sinuses which are situated in such a manner that a counter-opening may be made with facility, and the lodgment of the matter prevented.

When a superficial Abscess is opened, the pus, or matter, is to be pressed out of it gently, for it is a bad practice to squeeze all the parts of an Abscess with violence, in order to press out every drop of matter contained in it; for, in so doing, the object of nature is counteracted, as strong pressure upon parts which are still in a suffering state increase the inflammation, and renders the suppurating process longer. The complete evacuation of matter from an Abscess rather retards than accelerates the cure; since, in most Abscesses that have been opened, there are still some of the surrounding parts in an inflammatory state, and tending to suppuration, to which nothing can encourage them more, nor of course tend to relieve them sooner, than the contact of that mild, bland fluid, called healthy matter

To the superficial Abscess, which has been left to break of itself, nothing should be applied but emollient poultices, without any tow or other intervening substance. To those which have been discharged by

an incision, very little else is necessary, provided the size of the opening has been in proportion to that of the cavity. Tents crammed into the opening, prevent, the matter from flowing out as it is formed, and are, therefore, hurtful; at the same time, as the powers of restoration in quadrupeds are particularly strong, some soft tow may be introduced with a probe at the upper and lower ends of the wound, to prevent its healing outwardly before the cavity is filled up firmly with new flesh.

In cases where a fistula has taken place, the Abscess becomes a sinous ulcer, differing from the true sinus in being of a much longer duration, in having its internal surface, and external aperture indurated, and discharging from the opening a fluid of a sanious nature.

All fleshy parts of animals are liable to fistula; in treating of the horse, however, we are more particularly to attend to that of the parts called the withers and the poll, as being the most frequently met with; and as a knowledge of the method to be pursued with these will afford a tolerable conception how to act with the rest.

Fistula in the withers is produced by blows, bruises from the saddle, or by whatever may cause inflammation. Suppuration taking place, and the matter finding no proper outlet, it insinuates itself gradually into the cellular membrane, where, occupying the interstices of the muscles, and taking various directions, it forms what are termed fistula, or pipes, conveying a constant sanious discharge, as has been observed. Injuries of the bones will also produce fistula, and to these causes may likewise be added, the presence of extraneous bodies. When the cure of a fistula is undertaken, it will be requisite, in the first instance, to ascertain the direction it pursues, and whether it materially interferes with any of the larger blood-vessels, so as to render a full incision into the parts a matter of too much hazard to be attempted. When there is no danger of wounding any of the large blood-vessels, the most effectual practice is to lay the fistula so thoroughly open, that a complete view can be had of its internal surfaces. When this has been effected, the nature and extent of the fistula can be easily ascertained, but, as the surfaces of a fistulous ulcer differ very materially in their nature from a fresh or simple Abscess, the treatment also must be different. The surfaces having become diseased, and in some degree callous, all power of forming healthy matter is lost; it must be obvious, therefore, that the first process towards a cure, must be by destroying the diseased surface, and this is only to be done by caustic applications, and which may be repeated until the unsound parts slough away. The best application for this purpose will be the following:—

Viz. Corrosive sublimate . 1 drachm,

Dissolve in two ounces of spirits of wine.

A small pledget of tow, dipped in this lotion, may be applied once to the part, and, in the course of three or four days, a slough, or what the common farriers call a core, will come away. As soon as this has taken place, the surfaces of the sinus will put on a florid and healthy appearance, and granulations will rise, which will require little more than being kept clean; and, in case they should prove too luxuriant, a small quantity

of verdigris, in powder, may be occasionally sprinkled on the surfaces of the wound.

THE POLL-EVIL

is an Abscess of the same nature as the fistula in the withers, and generally runs into fistulous sinuses between the muscles of the neck, sometimes affecting the cervical ligament, called by the common farriers "*taxy waxy*," and sometimes extending to the bones of the neck. It generally proceeds either from a blow or hurt on the head, by accidentally striking it against the top of the stable-door, in going in or out. A shy horse is very apt to meet with such an accident when hanging back, and throwing up his head with a jerk.

As accidents of this description very soon form an Abscess, it is obvious that no time should be lost in stopping the inflammation in the first instance. The best mode of effecting this is to foment the part frequently with bran and water, and when the skin is dry, use the following embrocation:—

Camphor . .	1 drachm
Spirits of wine .	half-a-pint
Golard extract .	half-a-drachm

mixed.

Let the part be rubbed gently with some of this mixture, two or three times daily.

It will also greatly assist in promoting absorption, if a purge is administered at the same time as the outward applications are used. When, however, the inflammation has proceeded to suppuration, and matter can be felt by pressing the swelling with the finger, an opening may be made in the most depending part of the Abscess, and a seton should be introduced so as to pass through the other side, which should be moved every day, and washed clean with warm water.

The seton may also be wetted once daily with the following mixture, and afterwards drawn through the Abscess.

Corrosive sublimate	half-a-drachm
Spirits of wine . .	2 ounces

mixed.

If the Abscess is reduced in size, and the matter discharged becomes thick and white in colour, it is a sign that the Abscess has assumed a healthy state, and that it is gradually healing. As soon, therefore, as the Abscess is level with the surrounding parts of the neck, the seton may be taken out, and the part simply washed twice a day with warm water.

The old practice of the common farriers was to lay open the Abscess with the knife, and afterwards to pour certain ointments scalding hot into the wound. This, though apparently a barbarous practice, nevertheless generally succeeds, especially where there are deep sinuses between the muscles, because the ointment penetrates to the bottom of each of them, and destroys the diseased surfaces. A few days are suffered to elapse, after which, the scalding is repeated as before, keeping the wound clean from the discharge, by warm water.

The following ingredients are recommended for the scalding mixture, by an old author.

Viz. "Tar, mutton suet, and rosin, of each four ounces,

Bees' wax, two ounces
Melt them together, then add,
Spirit of turpentine, four ounces

Verdigris, in powder, one ounce
and a half.
Mix the whole together for use.

The above mixture is made scalding hot, and poured into the wound, as just stated, and undoubtedly is generally attended with a good effect.

In opening the Abscess, the operator should be careful to cut long-ways with the neck, so as to avoid cutting the cervical ligament; which, if it should happen to be divided, would deprive the horse of the power of holding up his head, and it would drop downwards, as if he were in the posture of grazing. Poll-evils, if they have existed a considerable length of time, generally leave a stiffness in the upper part of the neck, so as to prevent the animal from bending his head with the same ease that he did before. In this case, the horse decreases considerably in value, because he cannot graze with the same facility as a sound horse.

The Poll-evil is sometimes connected with a disposition in the habit of body to farcy; this may be known by the animal appearing universally unhealthy in his coat, the tightness of his skin, and also by small lumps or swellings in different parts of his body, and particularly on the insides of the legs. When it is ascertained, therefore, that the Poll-evil arises chiefly from a disposition to farcy, the mere operation of opening the Abscess, and using the dressings before recommended, will not prove sufficient, without the aid of medicine given internally; because the Abscess, not being a local affection arising simply from partial injury, it will be necessary to correct the general habit of body before a cure can be effected. The medicines best adapted for this purpose will be found under the article "*farcy*."

There are several compositions of ointments recommended by different authors amongst these the following may be safely made use of as occasion may require.

Digestive Ointment.

Take common turpentine 4 ounces,
The yolks of two eggs.
Mix these well together, then add,
Myrrh, in powder . . half-an-ounce
Mastic . . . . . 2 drachms
Tincture of myrrh, a sufficient quantity
to bring it to a proper consistence.

The above may be used in general for ulcers or wounds, that have been brought to a healthy state by mild caustics.

Gibson recommends the following :—

Take of yellow wax
Yellow rosin
Burgundy pitch, of each 3 pounds
Common turpentine . 12 ounces
Linseed oil . . 3 pounds 6 ounces.
Melt the whole over a slow fire, into an ointment.

The black basilicon is thus directed by the same author :—

Take of yellow rosin
Yellow wax,
Pitch, of each . half-a-pound
Olive oil . . 9 ounces
Melt them together, and strain through a piece of canvas.

The following is rather of a more cleansing or detergent nature, and may be used

when the Abscess gets foul and callous about the edges.

Take either of black or yellow basilicon four ounces,
Oil of turpentine, one ounce,
Red precipitate, in powder, three drachms, or half-an-ounce:
Mix the whole together.

This ointment will, in general, prove sufficient for the purpose of cleansing and correcting bad ulcers, and better in some cases than more powerful caustics, which, although they destroy diseased surfaces, still excite too much inflammation in the part, the consequence of which is often a more luxuriant growth of fungus, or proud flesh, than there was before.

The great error of the common farriers is, their using such strong stimulating applications to fresh wounds, under the erroneous idea that they hasten the formation of good matter, whereas they do but tend to interrupt nature in her operations. For there is usually a sufficient degree of inflammation in all fresh wounds, and frequently too much; and it requires, even under the most favourable circumstances, at least four days before matter can be formed, the first discharge being nothing more than serum or lymph.

It is, therefore, obvious, that the skill of the practitioner should consist in knowing how to regulate the degree of inflammation necessary to effect this purpose, since it sometimes happens, by injudicious treatment, that common Abscesses are converted into sinous and fistulous ulcers. One of the principal causes of such a change is the absurd practice of the common farriers in cramming tents or pledgets of tow into Abscesses, by which means, the sides are kept asunder in the same manner as a piece of timber is by a wedge, and hence, by tearing the membranes, the Abscess grows deeper, and runs into sinuses that lie out of the reach of common applications; besides that, the surfaces become callous from the constant and fruitless efforts of nature to get rid of an unnatural substance, thus injudiciously lodged in the part affected.

In fact, a recent wound requires little else, for the first two or three days, than fomentations with marshmallows, or bran and water; first taking care to ascertain that there is no extraneous substance in the wound, and if there is to remove it immediately.

THE VIVES.

The disease so called is an inflammation and swelling of the parotid glands, which are situated below the ear. They do not suppurate so rapidly as the strangles, and often wear off gradually, simply by keeping the part warm, and protected from the external air. Sometimes the swelling of these glands will continue for a fortnight or three weeks, and at length spread downward, under the throat, terminating in the strangles, and requires to be treated in the same manner precisely.

The Vives, like the strangles, is most incident to young horses, and usually proceeds from the same causes, such as catching cold, being over-heated, or over-worked, about the time of shedding their teeth. Nevertheless, it frequently attacks horses at a more advanced age, although they may have previously had the strangles. A horse affected with the Vives, coughs more than one that has the strangles, and has an equal difficulty in swallowing, arising from the pain and soreness of the glands, which are sometimes so tender, that the animal can neither bear the least pressure on the part, nor bend his head and neck without great uneasiness. The eyes also partake of the general inflammatory tendency of the disease, and becomes partly closed up, and discharging a thin watery fluid. There is, also, generally a greater or less degree of fever attending, which often reduces the bodily strength very considerably. Added to this, the difficulty of swallowing is another cause of weakness, from the horse being unable to take his accustomed food.

There is also frequently much inflammation in the mouth and gums, producing what is called, the "lampas," all of which contribute to aggravate the complaint. When the Vives arises from simple inflammation, in consequence of cold, it is not very difficult of cure, but when it is symptomatic of farcy, or glanders, it is for the most part incurable, except the original disease be first eradicated.

The usual method of treating the simple attack of the Vives is, in the first place, to anoint the part with ointment of marshmallows, and to cover the horse's head and neck with warm cloathing.

At the same time, it will be proper to bleed according to the strength of the animal, and repeat it if the fever continue violent; but if the glands inflame and swell, suppuration is to be promoted by warm embrocations and poultices. When the swelling runs downwards, under the jaw, the matter easily discharges when the abscess is ripe, and opened by the knife.

On the first appearance of the swelling, it may sometimes be carried off by giving one or two brisk purges, and by rubbing the part with the following lotion:—

Sal ammoniac . .	half-an-ounce
Vinegar	half-a-pint
Extract of golard .	1 drachm

mix for use.

Internally the same method is to be followed as in colds, and the same opening diet used, till the horse recovers his appetite.

A plentiful supply of water-gruel is a great help in all such cases, with scalded bran as a mash, to which an ounce of nitre may be added once a day.

When he has recovered his flesh and strength, one or two mild purges will be found useful. Purging is also necessary after the strangles, especially in cases where the horse appears surfeited or hide-bound.

THE JAUNDICE.

This disease is termed by the common farriers, "the Yellows." Horses are frequently subject to this malady, but in them it is less liable to be complicated with other diseases than in the human species, and, therefore, if taken in time, may be the more easily removed. The horse differs in one respect from all other animals except the deer, namely, by having no gall-bladder. This circumstance, however, does not predispose him to diseases of the biliary organs, more than he would have been had he possessed that appendage.

The Jaundice is produced by a proportion of bile getting into the blood-vessels, and circulating through the body along with the blood. This may arise from obstructions in the biliary ducts, preventing the gall, or bile, from flowing in its natural course into the intestines.

One cause of this obstruction may proceed from the bile becoming thick and inspissated, and thereby choaking up the mouth of the duct.

The disease, however, is generally attended with some affection of the liver in a greater or less degree, and this must be greatly aggravated by the constant excitement of high feeding, and the habitual costiveness produced by dry food.

It may also be produced by the suppression of the insensible perspiration from expo-

sure to cold The signs of the Jaundiee in norses, are a dusky yellowness of the eye, the inside of the mouth, and lips ; the tongue and bars of the roof of the mouth also look yellow. But it is necessary to distinguish between the yellowness of the Jaundice and that yellowness of the mouth and eyes, which sometimes happens on the crisis of an inflammatory fever, where the inflamed parts look yellow when the fever and inflammation are going off.

When this happens after a fever, the horse generally recovers his appetite, and looks lively, and the fever leaves him, and the yellowness soon after wears off.

But in the Jaundice, the yellowness is one of the first symptoms, and generally appears in the beginning of the complaint. The horse is dull, and refuses all manner of food, and the fever begins slowly ; yet both that and the yellowness soon increases, and proceed together. In the decline of an inflammatory fever, a horse dungs and stales freely. In the Jaundice, the dung is generally hard and dry, and of a pale colour, nearly white. The urine is commonly of a dark dirty brown colour, and when it has settled some time on the pavement, it looks red like blood. He also stales with some pain and difficulty, and if the disease be not soon checked, all the symptoms will increase very rapidly.

The Jaundice, in young horses, is seldom dangerous, and when it is caused by high feeding, and want of sufficient exercise, it is more easily removed than when it is brought on by those causes which induce a morbid state of the liver.

In old horses, when the liver has been long diseased, the cure will scarcely be practicable. For instance, a horse that has been a considerable time dull, heavy, and inactive, with a diseased appearance, seeming always aukward, and loth to turn short, or twist his body, especially to the near-side, the off-side of his belly hard, and somewhat distended, if the yellowness of the mouth and eyes appear at the same time, there will be reason to suspect a diseased liver, and probably a schirrous state of that viscus.

If the hard schirrous substances are small, and situated in the thinner lobes of the liver, a horse may probably linger out a considerable time with that defect; but if they grow large, and happen to be seated near the porus biliarus, or gall-duct, or the larger branches of the venæ portæ, the horse will grow exceedingly weak, and unable to endure the least fatigue ; the yellowness will increase, and if the owner can have patience to keep him without labour, he may then hold out to the last stage, when his legs and limbs will swell, and a wasting diarrhœa, or scouring, terminate his miserable existence. On the other hand, when the horse retains a moderate degree of strength and vigour, and the Jaundice has not been preceded by any other sickness or malady, there will be little or no fear of his recovery, if proper care be taken, and proper remedies applied. In the case of the Jaundice, some authors advise to bleed plentifully, before the distemper is confirmed, particularly when the liver happens to be inflamed from any cause, and when the case is attended with fever. Gibson says, even if the Jaundice be confirmed, it will be proper to bleed ; and afterwards to give some laxative clyster ; for, in the beginning of the disease, horses are apt to be costive, and sometimes costiveness

alone will bring it on. The clysters may be made of decoctions of marshmallows, camomile-flowers, or fennel-seeds, with some linseed oil. A decoction of madder and turmeric, with the addition of soap, may also be useful in a clyster. If the inflammation increases, which may be ascertained by the quickness and hardness of the pulse, more blood may be taken, and a pint of castor-oil, or six ounces of Epsom salts, may be given at intervals of twelve hours.

If the bleeding and the medicine have the desired effect of reducing the inflammation, the horse generally grows settled and quiet, and begins to feed.

In three or four days the disease generally abates, and the horse recovers his appetite in some degree. The disappearance of the disease may be ascertained by his eyes beginning to look clear, and the inside of his mouth of a lively colour; but if, on the contrary, there should be a discharge from his eyes, with a swelling of the eye-lids, which often occurs when the disease is near its crisis, it is evident that more time must elapse before the animal can be said to be perfectly cured. As the bowels are generally costive in this stage of the disease, the following opening ball may be given:—

Emetic tartar . .	1 drachm
Aloes Barbadoes	5 drachms
Castile soap . .	2 drachms
Ginger	half-a-drachm

in one ball.

Gibson also recommends purges; he says, "It may be useful to give the horse two or three mild purges, as soon as he has recovered his appetite, and a moderate degree of strength.

"Rowelling," he says, "is also proper in the Jaundice, especially for young horses, though he had cured many horses of the yellows without the help of rowels, and had never known the purgative course fail, if the horse was not previously broken down with disease; for, when the liver, or other internal parts, have been any time diseased, when a horse exhibits more or less a surfeited look, hardness and tension on the right side of the belly, or is observed always to labour when turning round, and apt to flag with the least exercise, it will scarce be worth while to lose much time, or bestow medicines upon him." A late author, Mr. Ryding, makes the following observations upon this disease. He says, "though the bile is not so liable to be obstructed in horses as it is in the human subject, yet it sometimes takes place, and is more frequently caused by inflammation of the liver than by biliary concretions. When this happens, the secreted bile becomes obstructed, and is forced into the hepatic veins, or taken up by the lymphatics, and carried into the circulation.

"This is discovered by the eyes appearing of a dusky yellow colour; the mouth, lips, and saliva, acquire a yellowish cast; the animal is dull and sluggish, and refuses his food; his urine is of a dark brownish colour, and when lodged on the ground appears red; he is also very costive, and his dung is very hard, and has the appearance of a yellowish, or greenish clay; his pulse is irregular, attended with fever in a greater or less degree. The disease and fever increasing, if not speedily removed, terminates in death."

The same author objects to bleeding as a general rule in Jaundice, on account of its increasing the debility which always attends

that disease. Brisk purges, (he says,) joined with calomel, will be found of the greatest benefit in removing obstructions to the free passage of the bile." He recommends the following :—

Take—Aloes Barbadoes . . 5 drachms
Calomel . . . . 1 drachm.
Mucilage of gum-arabic sufficient to make a ball,

To be given once in four days.

When the horse has taken two doses of this medicine, and his eyes and dung begin to change their colour for the better, he advises to leave off medicine and give him nourishing food, such as ground-oats and beans, or a quantity of bruised malt on which warm-water has been sprinkled, and after a remission of five or six days, the following ball is to be administered :—

Barbadoes aloes . . 3 drachms
Calomel . . . . half-a-drachm
Ginger, in powder . . . 1 scruple.
Honey sufficient to make a ball ;

to be repeated three times, at intervals of a week between each dose.

Another author, Mr. Denny, after recommending purgatives, gives the following prescription, to be taken on the second morning after the purge has ceased to operate, viz.

Take of Nitre,
Rosin,
Castile soap, of each half-an-ounce.
Honey enough to make a ball.

If the yellowness continue in the eyes and mouth, he advises a repetition of the above ball, after an interval of four days, whilst mashes and warm-water are to comprise the whole of the animal's diet. Warm clothing too must be allowed, and he should be exercised daily. To prevent a relapse, the purging ball may be advantageously repeated after the horse has recovered, and the following powder be mixed with the corn.

Ethiop's mineral
Nitre
Aniseseeds, in powder, each half-an-ounce.

Mix them together

ON NICKING.

This operation, although a very simple one, requires considerable care and attention after it is performed upon the animal, as, for want of that attention, fatal consequences have sometimes ensued.

The tail is moved in various directions, such as upwards, downwards, sideways, and in a rotatory direction, by means of muscles which are distributed to it for that purpose These which elevate the tail are called

elevators. These take their origin from the inferior or posterior edge of the third spinal process of the *os sacrum*, which origin is continued from near the end of the spine about half-way towards its root; its origin is continued fleshy from the sides, edges, and interspinal ligaments of the spines of the sacrum below that, from the whole length of the last of them, and after passing over one, is inserted into the next oblique process, or next but one below.

The depressing muscles of the tail are those which draw the tail downwards close to the buttocks. They take their origin from under the transverse process of the third vertebra of the sacrum, and continuing from the transverse processes of those below from the whole breadth of them and the intertransverse ligaments. The fleshy fibres are inserted into the bodies of the vertebra or bones of the tail.

The lateral muscles of the tail, which move it from side to side, arise from the spine of the last vertebra but one of the loins, the fleshy part goes to be inserted by a tendon into the oblique process of the third vertebra of the tail, and also into two or three of the lower ones, and then joins in with the elevating muscles of the tail. The intertransverse muscles of the tail arising from one vertebra, and inserted into the next, and so on through the whole length of the tail. There are muscles which arise from the upper or posterior part of the transverse processes, and are inserted into the oblique processes of the next but one or two below them.

The above is an anatomical description of the muscles of the tail, and which will explain the object of the operation of nicking.

There are some horses which carry naturally a good tail, and which, of course, require no nicking. In these the tail generally issues high out of the back, and describes a regular and beautiful sweep, and which is much more elegant than the straight line, or the ascending curve, which the nicked tail sometimes presents.

On the other hand, there are some sluggish slack-mettled horses which always carry their tails in a depending posture, and close to their buttocks. The appearance of such horses as these is therefore evidently improved by nicking.

The operation of nicking consists in dividing the muscles which depress the tail, so that those muscles which raise the tail, having no opposition from those which depress it, the tail naturally rises whenever the horse is put into motion.

The proper mode of proceeding is to cast the horse, and having all the dressings ready, the operator may cut a transverse line across the under part of the tail, at about the distance of two inches from the rump. The first incision should just go through the skin, after which the muscles of each side of the bone of the tail should be divided, taking care to avoid the artery, which generally runs close to the bone. The common practice is to cut three nicks at equal distance from each other, but in general one nick will be sufficient, especially as three are apt to make the tail curve upwards, giving it a vulgar hackney-like character.

As soon as the operation is over, take some pledgets of tow, rolled up at the ends, so as to tie like a string, and having sprinkled some fine oatmeal upon them, apply it to the divided part of the tail and tie it on tolerably

tight, and over that tie on a flannel bandage. The tail may then be put into the pulley, letting the weight at the other end of the string be just sufficient to keep the tail from falling down. On the following morning, cut the ties of the bandage through with the scissars, leaving on the bandage, which will stick on owing to the coagulated blood. This operation of cutting the tyes of the bandage is necessary to be done on the following day, because the tail swells in some degree, and if confined too long and too tight by the bandage, a very high degree of inflammation and even mortification may ensue. Owing to a want of attention to this circumstance, it is said, that a regiment of dragoons, in the English service, once lost above forty horses in the same week, which had undergone the operation of nicking. After the operation is completed, the tail is to be suspended by a pulley, with a weight at the end of it. The object of this is to keep the divided edges of the muscles apart from each other, so as to prevent them from uniting again during the process of healing.

It has been customary to make three incisions in the tail, but this is not necessary, one being generally sufficient, as the muscles lose all power of acting below the first incision.

The bandage may be taken off on the third day, and the tail dressed with common digestive ointment, spread upon pledgets of fine tow, and bound on by a flannel bandage moderately tight. The tail should be suspended by the pulley until it is perfectly healed, care being taken that the pulley will run easily from right to left, and *vice versa,* else the tail might be kept inclining too much to one side.

Bartlet invented a machine for suspending the tail without the use of a pulley. It consisted of a kind of saddle, or pad, with a groove in it, from which a cord passed to the tail so as to draw it upwards over the horse's back.

This machine, with considerable improvements, is used by Mr. Goodwin, at Carlton-house stables, and with great success. It is certainly the safest mode of securing the tail from accidents, but it is liable to one objection, which is, that it prevents the horse from lying down during the whole time of its being used, and which may generally be calculated at a fortnight or three weeks from the time of performing the operation.

There is another operation, which in compliance with custom, the horse's tail is doomed to undergo, namely,

DOCKING.

The manner of performing it is as follows :—

First feel with your finger and thumb for the third joint from the setting on of the horse's tail; then raise up all the hair, and turn it backwards, then, taking a very small cord, and wrapping it about that joint, pull it pretty tight.

But, previous to going on with the operation, it will be necessary to take the precaution of securing the animal so as to prevent him from committing any injury to the operator. This may be done by putting a twitch on his nose, and, at the same time, tying up one of his fore-legs. As soon as this is properly arranged, the operator should place the tail just below the bandage, between the docking shears, and with a firm steady stroke divide the lower part from the upper part.

When the tail is cut off, the part round the bone may be seared with a hot iron, of a circular form, just large enough to inclose the bone of the tail; a small quantity of powdered rosin may also be applied to the part and melted on it with the iron. The hair may then be untied, and suffered to be in its natural position. Some breeders of horses have a practice of docking their colts when four or five months old. This practice, it is said, prevents the necessity of nicking, as they generally carry their tails handsomely when docked at that early age. It is also supposed, that it strengthens their backs, as the tail, by being shortened in this manner, requires less nutriment from the juices of the body. Whether this is the fact or not cannot be easily ascertained, but, on the other hand, it is probable that it might occasion considerable inconvenience to the colt, by depriving him of a great part of his natural defence against flies and other insects.

WENS.

A WEN is a fleshy substance which occasionally grows out of various parts of a horse's body.

It is difficult to assign the cause from whence they proceed They begin usually in the skin where the vessels are extremely small, and these enlarging gradually in time grow to a considerable size.

Wens are seldom painful, owing to their small beginning and slow growth, being sometimes of several years' standing before they arrive to any great size. They become at last like the natural flesh, and are rarely attended with any other bad consequences than the deformity or weight, upon the parts where they are situated. Their substance is generally fleshy, and for the most part spongy, though some are spongy in part, with a mixture of schirrous hardness, of a cancerous disposition, especially when they arise among the glandular parts.

When a wen takes its origin from a tendon, or is attached to the fascia connected with the muscles, or when any part of a wen is involved with their fibres, the part generally appears, upon dissection, like so many threads laid close together, and this is in some degree the character of schirrus. When a wen commences from the membrana adiposa, its substance is then chiefly an accumulation of a greasy matter resembling suet; and in some cases a considerable quantity of clear water has been found. Wens are usually contained in a cyst, or bag, which incloses the whole substance; which increases in size in proportion as its contents increase.

and this is the reason why wens and other encysted tumours cannot be cured, unless the cyst, or bag, be also destroyed. Wens are seldom suffered to grow on horses to any great size before they are extirpated; but, in the human body, these substances occasioning little or no pain, are suffered to go on till they occasion a great deformity, or become troublesome by their weight. But as owners of horses are naturally anxious to remove every deformity that may occur to the animal, they attempt to disperse these wens by embrocations and lotions, and if these do not succeed, recourse is had to caustic, or to the shorter and more certain mode of extirpation, the knife.

Nevertheless, many draught-horses of little value may be seen troubled with wens, even sometimes upon their joints, without causing them to go lame, especially those that hang loose, and have their situation no deeper than the skin. Oxen and cows also are frequently troubled with large wens upon their knees, which might be removed if they proved of much inconvenience to the animal.

These latter are produced by the habit which horned cattle have of dropping on their knees first, in the act of lying down, whence the knee sometimes becomes bruised, and the skin swells in the way just mentioned.

Speaking on this subject, Gibson says, "I was once concerned in the case of a very fine horse that had a large wen on the lower part of his neck, near the windpipe, which was cut off with a sharp instrument. It grew from a small beginning, not bigger than a walnut, to the bulk of a middle-sized melon, without pain or inflammation; but at last it became troublesome, and affected the motion of his shoulders. This substance, when it was cut off, appeared to be no other than a mass of fungous flesh, a little variegated in its colour, and probably proceeded from a rupture of some very small twigs of the jugular arteries, which, being enlarged by a continual afflux of the blood, caused so great an effusion of blood from several orifices, that it was with difficulty stopped by the application of the actual cautery. When wens are pendulous (he observes) and hang by a small root, the best way to extirpate them is by tying them with a waxed packthread, or a hair line, making the ligature tighter by degrees till the substance falls off; afterwards it may be healed with common digestive ointment, or bathing it frequently with spirit of wine or tincture of myrrh.

"But, when a wen is broad in its root or place of attachment, and has several origins, like cords or strings, it is then the safest way not to meddle with it. If the cure be practicable, it must be done by excision or caustic. The first dressing must be with dry tow, and afterwards with the common digestive. If much fungous flesh arise, it may be dressed with red precipitate; and where most required, the sore may be strewed with precipitate and burnt alum in powder, of each equal quantities mixed. If yet stronger escharotics be required, equal quantities of powder of blue vitriol and of red precipitate may be used, or the part may be touched with a feather or pencil dipped in butter of antimony."

Horses are sometimes subject to swellings on the cap of the hock, and also on the point of the elbow, which the French called *capellets* and the English *capped*. These may

be classed amongst wens, because they have some of the same qualities and resemblances, viz. they often rise to a considerable bulk, are seldom painful, but when they inflame and suppurate, and therefore rarely cause lameness, and are often encysted as wens are, and have much of the same kind of contents. Young horses that are ticklish and given to kicking, when they are first placed to stand betwixt bales, are apt to lash out, and especially when the bales hang upon ropes and chains so as to move to and fro. By these means they often strike their hams against the bales or against the posts, and bring on a swelling on the tip of the hock, which, however, may be prevented by causing such horses to be removed into close standings; and, when the injury is slight, it may be cured by bathing the part with warm water or verjuice.

Those swellings that arise on the point of the elbow are thought to proceed from a horse striking it with the heel of the shoe when lying down, and when the leg is thereby doubled up, so that the heel touches the elbow. In this case, the elbow may sometimes be bruised, and inflammation and swelling may ensue.

When these tumours arise, in consequence of any of these accidents, we find the swelling generally on one limb, and oftentimes an impression is made on the part which shews it has been occasioned by a stroke or bruise; but when it rises on both sides, viz. on both heels, or on both elbows, and from a small beginning increases by degrees, we may then suspect it to be a spontaneous production, and more particularly entitled to the name of a wen.

Those tumours called *capellets*, on the point of the hock, are seldom so perfecly cured as not to leave some blemish or calosity. If they proceed from blows and contusions, the same method is to be followed that has been laid down for the cure of all such accidents, viz. by cool and restringent applications. These alone will often abate such swellings, both on the hocks and elbows, without further trouble, and in time remove them; but, when the vessels are broken, and the blood extravasated, they generally proceed to suppuration, which may be forwarded by anointing with any camphorated unctuous application; and, if the thickness of the skin should retard their breaking, they may be opened with a lancet in some depending part towards one side, and not behind. This method is better than opening by a caustic; because, as little of the skin as possible should be destroyed, where the parts are prominent, otherwise it would be difficult to cover the processes of the bones that form the point of the hock and the elbow, besides the blemish it would leave, as well as rendering the cure more tedious.

The same caution ought also to be observed in treating all tumours on the processes of any of the other bones, especially on the joints, where continual motion hinders their reunion, when they become wounded, or meet with any other accident that occasions a loss of substance.

When the matter of these tumours is all discharged, and the abscesses formed in them are dried up, which may be done with soft dossils dipped in a mixture of common turpentine, honey, and tincture of myrrh; there remains nothing farther than to bathe

the part once a day with spirit of wine and vinegar, equal parts. The skin, after such accidents, generally continues relaxed and exceedingly thickened, sometimes at least an inch and a half on the elbow. This relaxed state, however, may be much improved by using the foregoing astringent application.

Swellings of this kind on the point of the hock, often differ from those on the elbow, especially with regard to their contents; the matter of the former sometimes resembling thick paste, whilst the other may contain, perhaps, nothing but a thin viscid fluid.

This fluid is very similar to that which is contained in the capsules or swellings of the fetlock-joints, which are called wind-galls, and which, when punctured, are generally attended with a very troublesome degree of inflammation.

Those swellings, therefore, on the points of the hock and elbow, should be thoroughly examined before they are opened, so as to ascertain, if possible, whether they contain matter, or a fluid of the description just mentioned; because, although it may be adviseable to let out the former, still it is not so prudent to let out the latter.

The best criterion of judging is by the thickness of the skin, for the skin which surrounds an abscess, (except it be deep-seated,) is always thinner than usual; but if the skin is thicker, it may be presumed that the fluid underneath is not matter.

CONSUMPTION

Although horses are not particularly subject to this disease, yet many instances occur of a gradual wasting away, and a decline of vigor and strength, which may very properly come under the name of "*consumption.*"

This state of disease may be produced by various disorders, or a complication of disorders, and its consequences may be more or less serious, according to the circumstances of diet, labour, &c. It is most generally attended with some chronic affection of the lungs, and this may arise from a repetition of colds imperfectly cured, or from the influence of the farcy or glanders fixing upon that part of the animal machine.

Hot and irritable horses are the most liable to consumptions, as they are naturally weak and washy. Horses of this temperament generally exhaust themselves soon by overexertion; and, when worked beyond their natural strength, they lose their appetite, and stale and dung often, which occasions them to lose their flesh rapidly, and become weak and jaded; a hectic fever sometimes

succeeds, which, not being very violent in its immediate effects, is overlooked or is not attended to; and, although the animal may recover of himself by a few days rest, yet he is subject to the same effects whenever he is again put to constant and severe labour. When a consumption arises from any defect in the lungs or principal viscera, the eyes look dull and a little moist, and the ears and feet are generally hot. There is generally a dry husky cough, and a groaning when turned suddenly in the stall; the horse sneezes much when brought into the cold air, and shews uneasiness and a quick motion in his flanks, discharges occasionally at the nose, and generally a yellowish curdled matter. His breath also smells more or less offensive when the disease has made much progress, or been of long continuance. They eat but little at a time, and chew their hay very lightly and deliberately, and very often throw the cud out of their mouths after chewing it. In general, they are hide-bound, and their coats are long, dry, and staring, even in summer. These symptoms disappear upon being turned to grass in warm weather, owing to the richness and succulence of the herbage, but they soon return when in the stable and again put to work.

When a horse that has any of the above symptoms retains a tolerable appetite, and keeps up his spirit in a certain degree, without losing his flesh, it is a sign that the disease has not yet taken a very deep root; but, on the contrary, when he continues to lose flesh and strength, it is a pretty certain indication of inward decay beyond the power of medicine to prevent. When there is a yellowish curdled matter discharged from the nostrils, it may generally be considered as the last stage; but, if the matter be white and well digested, and occasionally decreases in quantity, or changes to a clear water, it is a promising sign, especially if the horse be young; but, even under these circumstances, the predisposition to disease may still exist, and the smallest irregularity, either in diet, cloathing, or exercise, may bring on a return of the complaint. As consumption is generally preceded by a considerable degree of inflammation, bleeding to a copious extent is necessary; for, until the inflammatory symptoms are subdued, no certain opinion can be formed of the probability of a cure. After the horse has been bled to the amount of three or four quarts, his bowels may be gently opened by clysters and the following laxative ball.

Aloes Barbadoes . . .	4 drachms
Emetic tartar	1 drachm
Castile soap	half-an-ounce

Liquorice powder, sufficient to make the ball a convenient size.

The above quantity is to be made into one ball.

The horse should be prepared the day previous to taking the ball, by bran-mashes; and these should be continued during the operation of the medicine. He should be kept moderately warm, and the water which he drinks should first have the chill taken off.

When his bowels have been opened by the above means, a course of diaphoretics, or such medicines as relax the skin, and increase the insensible perspiration, should be next resorted to. For this purpose, the following ball may be given every other night, for three or four nights, and then omitted for a

couple of nights, and repeated afterwards if necessary.

Assafœtida	1 drachm
Emetic tartar . . .	1 drachm
Ginger	1 drachm

Liquorice powder sufficient to make the ball a convenient size.

The whole to be mixed up with syrup of buckthorn.

During this course of medicine, green food, if it can be procured, will be desirable; if in the winter season, carrots will be a good substitute.

The horse should be gently exercised for a short time daily, but by no means hurried beyond a walk, because any great increase of the circulation of the blood, might have a tendency to bring on a return of the inflammatory symptoms.

When the horse is out of danger, and shews certain symptoms of recovery, the greatest attention should be paid to his diet.

His oats should be the hardest and sweetest that can be procured, for new oats always make a horse scour, especially one of the habit of body here alluded to. His feeds should also be small, that he may not be cloyed by having too much at once.

His hay should be of the sweetest and finest quality, at least nine months old, and should be given also in small quantities at a time, and he should be watered frequently, as there is no danger of his drinking too much; it being a certain fact, that those horses which are frequently watered during the day, drink less than those that are watered only at morning and evening. The water should be soft, and free from any mineral qualities. By a proper attention to these particulars, the animal may be restored to such a state of health, as to qualify him for light and moderate work; and, when perfectly recovered, the more he is out of doors in the fresh air the better, provided he is not fatigued too much, or suffered to chill whilst in a state of perspiration. By exposure to the fresh air, his nervous system will be braced and invigorated, and his appetite increased; whilst his evacuations by urine and dung will be promoted in a degree sufficient for a healthy state of body. Both the restoration of health, and its permanence, will depend a good deal on the age of the animal; for it will be fruitless to expect much benefit, or a continuance of a healthy state, in a body that is worn out by age and disease.

Some young horses continue in this consumptive state for several months, and, through the effects of great care and nursing, give at some intervals a prospect of recovery, but, nevertheless, die ultimately, exhausted by disease. Some go off in a much shorter time, although they are not apparently so much debilitated, and some recover after a discharge from the nostrils even of two or three years standing; but, in this last case, the discharge has been suspended at intervals, and the mucus was always white, and when it ceased at any time, it was generally succeeded by a simple discharge of clear lymph or water.

Such horses will retain their appetite, and not lose their flesh, and will go through their work tolerably well with good usage, though, if they are hurried a little more than ordinary, they will be the worse for it; and those to whose lot such horses have

fallen, must have observed, that they seldom recover perfectly, or remain long well, until they are seven or eight years old, when their complaints frequently go off, and they become healthy and useful animals.

Gibson describes another discharge from the nostrils, with the following observations: "This discharge," he says, "happens when the strangles have never come to maturity, or when the swelling has been opened before the matter was ripe and in a fit state to be discharged. In this case, there is generally a profuse running at both nostrils, and when this continues for any great length of time, the horse grows extremely weak, loses his flesh, and at length his lungs are affected, and he becomes consumptive; but this may nevertheless be cured if the proper means are resorted to." Of those horses that are naturally of a hot and fretful temper, and seem naturally disposed to hectic, few are of any great value; yet if one of that description happens to excel in his going, the best way to preserve him is to feed him often in small portions, not to overwork him, nor to suffer him to carry too great weight. The spring grass is also good for such horses, taking them into the house at night whilst the weather is cold. By such treatment some tender horses have had their constitutions greatly improved, and become serviceable to their owners.

There is another kind of consumption to which some horses are subject, where the animal has little or no cough, no running at the nose, nor scarcely any symptom of a hectic fever, eats his food tolerably well, and yet continually wastes in his flesh, and becomes hide-bound, so that the skin of his body is nearly immoveable.

This is a dangerous disease, and generally proceeds from hard usage, from feeding on unwholesome provender, and from want of proper cleaning. This state of disease frequently terminates in farcy or glanders.

When the animal has arrived at this state, he may generally be considered as incurable, and many owners of such horses, after a long series of expence and trouble, have found all their efforts to effect a cure vain and fruitless.

In this state of the disease, the glands of the mesentery, and other lymphatic glands, are very much enlarged, and when, in consequence of this indurated state, the glands are become schirrous, they lose their natural function, and hinder the chyle and lymph from mixing with the blood, and the horse losing his proper nourishment sinks in flesh, and becomes weak and emaciated, and, finally, sinks under the complaint.

This state of diseased glands is generally symptomatic of the farcy, or glanders, and if the lymphatics of the thighs are corded, or knotty, little doubt need be entertained of the existence of that disorder. In this case, the only hope of relief, slender as it may be, will consist in having recourse to the medicines prescribed for the farcy, taking care, at the same time, to accompany the course with nourishing diet. It will first be necessary to open the bowels by a mild purgative, such as the following:—

Viz. Barbadoes aloes . . 6 drachms
Castile soap . . . . half-an-ounce
Ginger . . . . . 2 drachms
In a ball with syrup of buckthorn.

The above ball may be given in the morning fasting, with the usual precautions

of mashes, and water with the chill off. On the day after the horse has done purging, the following ball may be given:—

Corrosive sublimate . . .	1 scruple
Emetic tartar	1 drachm
Opium	1 scruple
Ginger	2 drachms

Liquorice powder sufficient to make the ball of a proper size.

After taking this ball, the horse is to be kept warm, and the ball may be repeated every night, for five or six nights, except the horse shews any uneasiness or griping pains, in which case it may be omitted for a night, until those symptoms disappear. After a course of this medicine has been persevered in for a fortnight or three weeks, the horse may be turned out to grass in the day time, if the weather is fine, and taken up at night.

COUGH

Is a sudden action of the muscles of the ribs, of the diaphragm and abdominal muscles, wherein they all combine for the purpose of expelling any irritating substance or fluid which may lodge about the larynx, and which, by passing down the trachea would irritate and disturb the lungs. It may arise, however, from that part being in an inflamed and irritable state, in which case even the inhalation of cold air alone will sometimes excite a cough.

When a cough has existed for a considerable length of time, and the horse has shewn no particular symptoms of disease, nor has fallen off either in flesh or in appetite, it is then distinguished by the appellation *chronic cough,* and which, though it may not produce any immediate bad effects, yet frequently terminates in broken wind.

The origin of coughs, of this description, may generally be ascribed to a cold, that has never been perfectly cured, or it may arise from the repulsion of greasy or farcy humours from the surface of the body or the extremities, without attending to the precaution of using such a course of internal medicine as is necessary to eradicate those diseases.

In many of these cases the lungs may be oppressed by a too copious secretion of mucus, excited by some stimulating virus lurking in the system; and hence the lungs are constantly endeavouring to relieve themselves by the action of coughing. In this latter case, the horse may be observed to breathe rather quicker than he naturally ought to do; the motion of his flanks will be increased upon the least exercise; nevertheless, the nostrils will not apparently be much distended, as is the case after violent exertion. The cough is generally short and

husky, and is usually succeeded by the action of sneezing, which is for the purpose of throwing out, through the nose, the phlegm or mucus that may happen to be coughed up; for it is to be recollected, that nothing ever returns through the mouth of the horse, owing to the peculiar construction of the velum palati, or membrane which drops from the roof and lodges on the tongue, thereby forming a valve. It may be generally observed, in regard to chronic coughs, that the horse is always considerably relieved whilst this discharge of mucus goes on, but that the cough always becomes more troublesome when the discharge ceases. This points out the propriety of giving such medicines as will keep up the discharge until the lungs are thoroughly unloaded; and, for this purpose, the following ball will generally be found useful:—

Sulphur . . . . . 1 drachm
Assafœtida . . . . 2 drachms
Liquorice powder . . 2 drachms
Venice turpentine . . 2 drachms
Mixed in a ball.

This ball may be given every other night, for four or five nights, in conjunction with bran-mashes, or carrots if they can be procured. It will be adviseable not to work the horse violently during this course, but to give him just exercise sufficient to assist the action of the medicine, keeping him at the same time moderately warm. A cordial ball may be given occasionally in the interval between the other balls, with advantage. The cordial ball may be composed as follows:—

Spanish liquorice,
Anniseeds bruised,
Liquorice powder, of each four ounces
Carraway seeds,
Anisated balsam of sulphur, of each two ounces.
Ginger, in powder,
Oil of aniseeds, of each four drachms.
Honey sufficient to form the mass, to be divided into twelve equal balls.

The foregoing mode of treatment will be found useful where the cough is not attended with symptoms of any other disease lurking in the constitution, in which case it would be only palliative, without removing the original cause. The practitioner, therefore, should take into his consideration, the state of the horse's general appearance in regard to his skin and his extremities. He should particularly observe, whether his skin is soft and pliant, and the coat sleek and moist; or, whether it is hard, dry, and immoveable on his ribs; he should also observe the state of the animal's legs in the morning before he is taken out of the stable, to ascertain whether they are swelled, or fine and clean.

It is upon these points that conclusions ought to be drawn as to the horse's general state of health; for if he is hide-bound, and his legs are found to swell in the morning previous to exercise, it may very rationally be concluded, that there is some irregularity in his habit of body, in regard to the secretions and excretions which requires to be corrected, before any benefit can be derived from such medicines as are only calculated to relieve the cough.

Therefore, whenever the above-mentioned symptoms of a bad habit of body are discovered, it will be adviseable to administer

a purge or two previous to entering upon any other course. The purge may be composed as follows:—

Barbadoes aloes . . . 8 drachms
Castile soap . . . . . 2 drachms
Ginger . . . . . 1 drachm
To be made into a ball with syrup

This ball may be given with the usual precautions of bran-mashes and warm water, and may be repeated once at the interval of seven days. On the second day after the last dose has done operating, the cough-balls, as before prescribed, may be given in the manner therein directed.

Horses that are subject to chronic coughs should be exposed as little as possible to any violent or sudden change of temperature, because they are naturally more delicate and irritable in their lungs than horses of a robust constitution. Nevertheless, a run at grass for two or three months, in a dry summer, is frequently beneficial; but the contrary will be the case it the summer bewet and cold; circumstances which must naturally have a bad effect on horses of a delicate habit.

An habitual cough will sometimes arise from irritation about the larynx, or upper part of the windpipe; in this case, a blister applied to the throat will afford considerable relief, by stimulating the surface of the skin, and thereby relieving the internal parts.

The following preparation is recommended by an old author, and appears to be well calculated to produce a good effect:—

Castile soap,
Liquorice powder,
Aniseed, in powder,
Barbadoes tar, six ounces,
Gum ammoniac, two ounces,
Balsam of Tolu, one ounce.

Mix the whole together, and divide into twelve equal balls.

One of these balls may be given every other night until the whole are used.

There are some horses that are thick-winded, without any apparent cause for it. These are generally great feeders, and will devour their litter when they are kept short of hay. This imperfection in their wind increases if they are kept much in the stable without work; consequently, they are always the better for strong exercise. This increases the peristaltic motion of the intestines, and unloads them regularly so as to prevent too great an accumulation of dung within them; which, by distending the belly, prevents the diaphragm from employing its natural free action, and consequently is more or less oppressive to the lungs. A proper attention to diet and exercise will do more benefit to horses of this description than medicine, and great care should be taken, that their food is of the best quality, avoiding always both *new* hay and *new* oats. Certain regulations should also be observed in regard to water; the common opinion, that water is hurtful to thick-winded horses being, to a certain extent, a very erroneous one. It certainly would not be adviseable to give the horse as much as he would drink immediately before he was put to work, but as there is generally some disposition to heat in the stomach, in horses that are thick-winded, it is a great relief to them to drink frequently, and this

may be permitted, provided they are restricted to a moderate quantity at each time of drinking.

Carrots, or Swedish turnips, are useful as a variety in food, as they tend to keep the bowels from becoming too costive. Bran-mashes occasionally are also beneficial, as they have the same effect.

ON THE NATURE AND USE OF ANTIMONIALS.

Antimony, when prepared in a certain manner, is so useful a medicine in veterinary practice, that every practitioner should understand its nature and properties.

If powdered antimony be exposed to a gentle fire, the sulphur exhales; the metallic part remaining in the form of a white calx, reducible, by proper fluxes, into a whitish brittle metal called *regulus*. This is readily distinguished from the other bodies of that class, by its not being soluble in aqua fortis; its proper menstruum is aqua regis.

If aqua fortis be poured on crude antimony, the metallic part will be dissolved, and the sulphur thrown out, partly on the sides of the vessel, and partly to the surface of the liquor, in the form of a greyish yellow substance. This, separated and purified by sublimation, appears on all trials the same with pure common brimstone. The metal, freed from the sulphur naturally blended with it, and afterwards fused with common brimstone, resumes the appearance and qualities of crude antimony. There is a striking difference between the effects of the preparation of antimony on the human and brute stomach. To the former, the antimonial medicine is of the greatest power of any known substance. The quantity even of a single grain is capable of producing the most active effects if taken dissolved or in a soluble state. If given in such a form as to be immediately miscible with animal fluids, it proves violently emetic; if so managed as to be more slowly acted upon, it proves cathartic and if the dose be extremely small, diaphoretic.

Thus, though vegetable acids extract so little from this metal, that the remainder seems to lose nothing of its weight, the tinctures prove, in large doses, strongly emetic, and in smaller ones, powerfully diaphoretic. The regulus has been cast into the form of pills, which acted as violent cathartics; though without undergoing any diminution in their weight in their passage through the body, and this repeatedly for a great number of times. These preparations, however, exhibited to the horse, have a less sensible effect. Notwithstanding this, they

are of great importance in the treatment of several diseases with which he may be afflicted. This metal, divested of the inflammable principle, which it has in common with other metallic bodies that are reducible to a calx, becomes indissoluble and inactive. The calx, nevertheless, when urged with a strong fire, melts into a glass, which is as easy of solution, and as violent in operation in the human subject, as the regulus itself; the glass thoroughly mixed with such substances as prevent its solubility, as wax, resin, and the like, is again rendered mild.

Vegetable acids, as has already been observed, dissolve but an extremely minute portion of the metal; the solution, nevertheless, is powerful. The nitrous and vitriolic acids only corrode it into a powder, to which they adhere so slightly as to be separable in a considerable degree by water, and totally by fire, leaving the regulus in the form of a calx similar to that prepared by fire alone. The marine acid has a very different effect; this reduces the regulus into a violent corrosive; and though it unites with difficulty, yet it adheres so very closely, as not to be separable by any ablution, nor by fire, the regulus arising along with it. The nitrous or vitriolic acids expel the marine, and thus reduce the corrosive into a calx similar to the foregoing. Sulphur remarkably abates the power of this metal, and hence crude antimony, in which the regulus appears to be combined with sulphur, from one fourth to one half its weight, proves altogether mild. If a part of the sulphur be taken away by such operations as do not destroy or calcine the metal, the remaining mass becomes proportionably more active. The sulphur of antimony may be expelled by deflagration with nitre, the larger the quantity of nitre to a certain point, the more of the sulphur will be dissipated, and the preparation will be more active. If the quantity of nitre be more than sufficient to consume the sulphur, the rest of it, deflagrating with the inflammable principle of the regulus itself, renders it again mild.

The sulphur of antimony is likewise absorbed in fusion by certain metals and by alkaline salts. These last, when mixed with sulphur, prove a menstruum for all the metals (zinc excepted;) and hence, if the fusion be long continued, the regulus is taken up, and rendered soluble in water.

From these particulars, with respect to antimony, it may naturally be concluded, that it not only furnishes us with an useful and active medicine, but that it may also be exhibited for veterinary purposes under several different forms, and that the effects of these will be considerably diversified.

The College of Physicians have, in regard to human medicine, restricted the number of preparations of antimony in their pharmacopeia to a few only. And it is highly probable, that, from the proper employment of them, every useful purpose to be answered by antimony, as a remedy in the diseases of cattle, may be accomplished.

Calcined antimony is prepared in the following manner. Take of antimony, powdered, eight ounces; nitre, powdered, two pounds; mix them, and cast the mixture, by degrees, into a red-hot crucible. Burn the white matter about half-an-hour, and when cold, powder it, after which, wash it with distilled water. In the last edition of the

London Pharmacopeia, this preparation had the name of *calx of antimony*, and it may be considered as at least very nearly approaching to some other antimonials of the old Pharmacopeia, particularly to the nitrated diaphoretic antimony, washed ditto, and stibiated nitre; none of which are now received as separate formula of Pharmacopeia; and, indeed, even the calx of antimony itself, thus prepared, has now no place in the Edinburgh Pharmacopeia.

The calx of antimony, when freed by washing from the saline matter, is extremely mild, if not altogether inactive in the human subject. For a man, the common dose is from five grains to a scruple, or half-a-drachm; and Wilson relates, that he has known it given by half-ounces, and repeated twice or thrice daily for several days together. Some report, that this calx, by keeping for a length of time, contracts an active quality, from whence it has been concluded, that the powers of the reguline part are not entirely destroyed; that the preparation has the virtues of other antimonials, which are given as alteratives; that is to say, in such small doses as not to disturb the primæ viæ, or first passages. The uncalcined part being grosser than the true calx, the separation is effected by often washing with water, in the same manner as is directed by separating earthy powders from their grosser parts. It has been observed, that when diaphoretic antimony is prepared with nitre abounding with sea-salt, of which all the common nitre contains some portion, the medicine has proved violent. This effect is not owing to any particular quality of the sea-salt, but to its quantity, by which the proportion of the nitre to the antimony is rendered less.

The *nitrum stibiatum*, as it was called, is produced by the deflagration of the sulphur of the antimony with the nitre, in the same manner as the *sal polychrest*, from which it differs no otherwise han in retaining some portion of the antimonial calx. Notwithstanding the doubts entertained by some of the activity of the antimonium calcinatum, yet the London College appear to have done right in retaining it. For whilst it is allowed to be the mildest of our antimonials, it is admitted, by several able practitioners, to be efficacious.

CROCUS OF ANTIMONY.

Take of antimony powdered, nitre powdered, of each one pound, sea-salt one ounce. Mix, and put them by degrees into a red-hot crucible, and melt them with an increased heat. Pour out the melted matter; and, when cold, separate it from the scoriæ.

Equal parts of antimony and nitre are to be injected, by degrees, into a red-hot crucible; when the detoration is over, separate the reddish metallic matter from the whitish crust, beat it into a powder, and edulcorate it by repeated washings with hot water, till the water comes off tasteless. Here the antimonial sulphur is almost totally consumed, and the metallic part left divested of its corrector. These preparations, given from two to six grains, generally act as violent emetics, greatly disordering the constitution. But the operation, like that of every preparation of antimony, whose reguline part is not joined with an acid, must be liable to variations, according to the quantity and condition of the acid in the stomach. Farriers frequently give to horses an ounce or two in a day, divided into different doses, as an alterative.

In the horse, and other quadrupeds of the herbiverous tribe, it acts chiefly as a diaphoretic. The chemists have been accustomed to make the crocus with a less proportion of nitre, than what is directed above, and without any further melting, than what ensues from the heat which the matter acquires by deflagration; which, when the quantity is large, is very considerable; a little common salt is added to promote the fusion. The mixture is put, by degrees, into an iron pot or mortar, somewhat heated, and placed under a chimney; when the first ladleful is in, a piece of lighted charcoal is thrown to it, which sets the matter on fire; the rest of the mixture is then added by little and little, the deflagration is soon over, and the whole appears in perfect fusion; when cold, a considerable quantity of scoriæ is found on the surface, which scoriæ are easily knocked off with a hammer. The crocus, prepared after this manner, is of a redder colour than that of the former edition of the London pharmacopeia. And, indeed, the method now directed by the London College may be considered as founded on this. It differs principally from that of the Edinburgh College, in the employment of the sea-salt, by which the process is much facilitated.

MURIATED ANTIMONY

Is prepared by taking of the crocus of antimony powdered, and vitriolic acid, of each one pound; dry sea-salt two pounds. Pour the vitriolic acid into a retort, adding, by degrees, the sea-salt and the crocus of antimony, previously mixed; then distil, in a sand-bath. Let the distilled matter be exposed to the air for several days, and then let the fluid part be poured off from the dregs.

BUTTER OF ANTIMONY.

Take crude, one part; corrosive sublimate, two parts. Grind them first separately, then thoroughly mix them together, taking the utmost care to avoid the vapours. Put the mixture into a coated glass retort, (having a short wide neck,) so as to fill one half of it; the retort being placed in a sand-furnace, and a receiver adapted to it, give first, a gentle heat that only dewy vapours may arise; the fire being then increased, an oily liquor will ascend and condense in the neck of the retort, appearing like ice; which is to be melted down by a live coal cautiously applied. This oily matter is to be rectified in a glass rétort into a pellucid liquor.

The process here directed by the College of Edinburgh is extremely dangerous, insomuch, that even the life of the operator, though tolerably versed in common pharmacy, may be endangered for want of due care. Boerhave relates a case of a man who was suffocated for want of due care, to prevent the bursting of the retort. The fumes which arise, even on mixing the antimony with the sublimate, are highly noxious, and sometimes issue so copiously and suddenly as to be avoided with great difficulty. The utmost circumspection, therefore, is necessary. The butter of antimony, as it is called, appears to be a solution of the metallic part of the antimony in the marine acid of the sublimate; the sulphur of the antimony and the mercury of the sublimate remain at the bottom of the retort, united into an æthiops. The solution does not succeed with spirit of

salt in its liquid state, and cannot be effected, unless (as in the case of making sublimate) either the acid be highly concentrated, and both the ingredients strongly heated, or when the antimony is exposed to the vapours of the acid distilled from the black calx of manganese. By this last process, a perfect solution of the regulus of the antimony in the muriatic acid is effected. Of this more simple, more safe, and less expensive method, of preparing muriated antimony, a account is given by Mr. Russel, in the transactions of the Edinburgh Royal Society.

ANTIMONIAL POWDER.

Take of antimony, coarsely powdered, harts horn shavings, each two pounds; mix and put them into a wide red-hot iron pot, stirring constantly till the mass acquires a grey colour. Powder the matter when cold, and put it into a coated crucible. Lute to it another crucible inverted, which has a small hole in its bottom; increase the fire, by degrees, to a red heat, and keep it so for two hours. Lastly, reduce the matter, when cold, to a very fine powder.

In this preparation, which is the celebrated James's powder, the metallic part of the antimony, in a state of calx, will be united with that part of the hartshorn which is indestructible by the action of fire; viz., an absorbent earth. If this powder be properly prepared, it is of a white colour. It is a mild antimonial preparation, and is given as an alterative.

PRECIPITATED SULPHUR OF ANTIMONY.

Take of antimony, powdered, two pounds; water of pure kali, four pints; distilled water, three pints; mix and boil them with a slow fire for three hours, constantly stirring and adding the distilled water as it may be wanted; strain the hot ley through a double linen cloth, and drop into the hot liquor, by degrees, as much diluted vitriolic acid as is sufficient to precipitate the sulphur. Wash off, with warm water, the vitriolated kali.

GOLDEN SULPHUR OF ANTIMONY.

Boil, in an iron pot, four pounds of caustic ley, diluted with three pints of water, and throw in, by degrees, two pounds of powdered antimony, keeping them continually stirring with an iron spatula for three hours, over a gentle fire, and occasionally supplying more water.

The liquor, loaded with the sulphur of antimony, being then strained through a woollen cloth, drop into it gradually, while it continues hot, so much spirit of nitre, diluted with an equal quantity of water, as shall be sufficient to precipitate the sulphur, which is aferwards to be carefully washed with hot water

The foregoing preparations are not strictly sulphurs; they contain a considerable quantity of the metallic part of the antimony, which is reducible from them by proper fluxes.

These preparations must, of course, be liable to great variations in point of strength, and, in this respect, they are, perhaps, the most precarious, though some have affirmed that they are the most certain, of the antimonial medicines. They prove emetic when taken into the human stomach, in a dose of four to six grains; but they are scarcely prescribed with this intention. being chiefly

used as alterative deobstruents, particularly in cutaneous disorders.

TARTARISED ANTIMONY.

Take of crocus of antimony, powdered, one pound and a half; crystals of tartar, two pounds; distilled water, two gallons; boil in a glass vessel, about a quarter of an hour, filter through paper, and set aside the strained liquor to chrystallise.

EMETIC TARTAR.

Take of the butter of antimony what quantity you choose, pour it into warm water, in which so much of the purified vegetable fixed alkali has been previously dissolved, that the antimonial powder may be precipitated, which, after being well washed, is to be dried. Then, to five pounds of water, add, of this powder, nine drachms; of chrystals of tartar, beat into a very fine powder, two ounces and a half; boil until the powders are dissolved. Let the strained solution be slowly evaporated in a glass vessel to a pellicle, so that chrystals may be formed. The above are two modes of making the most common, and perhaps the most useful, of all the antimonial preparations, long known in the shops under the name of emetic tartar.

These modes differ considerably from each other, but, in both, the reguline part of the antimony is united with the acid of the tartar. It is, perhaps, difficult to say to which mode of preparation the preference is to be given, for on this point the best chymists are still divided in their opinions. The mode directed by the London College, is nearly the same with that of former editions of their pharmacopeia, while that which is now adopted in Edinburgh, is of later date. It is very certain, however, that, by either mode, a good emetic tartar may be formed. Bergman advises, that the calx be precipitated by simple water, as being the least liable to variation. But where the calx is precipitated by an alkaline ley, it is more certainly freed from the muriatic acid. In the after part of the process, whether precipitate or crocus have been used, the quality of the antimonial ought always to be some drachms more than is absolutely necessary for saturating the acid of tartar, so that no crystals may shoot which are not impregnated with the active metallic part of the antimony. And, in order to secure an uniform strength, some attention is necessary in collecting the chrystals, as some may contain more metal than others. After they are all separated from the liquor, they should be rubbed together in a glass mortar, into a fine powder, that the medicine may be of uniform strength. Emetic tartar is, of all the preparations of antimony, the most certain in its operation in the human subject, when given even in a dose of a single grain; and it is an excellent alterative for horses, in doses from half a drachm to two drachms, so that the different proportion between the horse and man varies more in this medicine than in many others; for it appears, that the horse can take forty times as much emetic tartar as a man; but in regard to aloes, twenty times the quantity taken by a man, is quite sufficient for a horse.

VITRIOLATED ANTIMONY.

Take of powdered antimony four ounces; calcine it in a broad earthen vessel, with a fire gradually raised, stirring with an iron

rod, until it no longer emits a sulphureous smoke. Put this powder into a crucible, so as to fill two thirds of it. A cover being first fitted on, make a fire under it, at first moderate, afterwards stronger, until the matter be melted. Pour out the melted glass.

GLASS OF ANTIMONY.

Strew antimony, beat it into a coarse powder, like sand, upon a shallow unglazed earthen pan, and apply a gentle heat underneath, that the antimony may be heated slowly, keeping it, at the same time, continually stirring, to prevent it from running into lumps. White vapours, of a sulphureous smell, will arise from it. If they cease to exhale with the degree of heat first applied, increase the fire a little, so that vapours may again arise; go on in this manner till the powder, when brought to a red heat, exhales no more vapours. Melt the calx in a crucible with an intense heat, till it assumes the appearance of melted glass; then pour it out on a heated brass plate or dish.

The calcination of antimony, in order to procure transparent glass, succeeds very slowly, unless the operator be wary and circumspect in the management of it.

The most convenient vessel is a broad shallow dish, or smooth flat tile placed under a chimney. The antimony should be the purer sort, such as is usually found at the apex of the cones; this, grossly powdered, is to be evenly spread over the bottom of the pan, so as not to lie above a quarter of an inch thick upon any part.

The fire should be at first no greater than is just sufficient to raise a fume from the antimony, which is to be now and then stirred; when the fumes begin to decay, increase the heat, taking care not to raise it so high as to melt the antimony, or run the powder into lumps; after some time, the vessel may be made red hot, and kept in that state, until the matter will not, on being stirred, any longer fume. If this part of the process be duly conducted, the antimony will appear in an uniform powder, without any lumps, and of a grey colour.

With this powder, fill two thirds of a crucible, which is to be covered with a tile, and placed in a wind furnace. Gradually increase the fire until the calx be in perfect fusion, when it is to be occasionally examined by dipping a clean iron wire in it. If the matter, which adheres to the end of the wire, appears smooth and equally transparent, the vitrification is completed, and the glass may be poured out on a hot smooth stone or copper plate, and suffered to cool slowly, to prevent its cracking and flying in pieces. It is of a transparent yellowish red colour.

CERATED GLASS OF ANTIMONY.

Take of yellow wax a drachm, glass of antimony, reduced into powder, one ounce. Melt the wax in an iron vessel, and throw into it powdered glass; keep the mixture over a gentle fire for half an hour, continually stirring it; then pour it out upon paper, and, when cold, grind it into powder. The glass melts in the wax with a very gentle heat. After it has been about twenty minutes on the fire, it begins to change its colour, and in ten minutes more, comes near to that of Scotch snuff, which is a mark of its being sufficiently prepared; the above quantity loses about a drachm of its weight in the

process. In the human subject this medicine was, for some time, much esteemed in dysenteries. The dose given is from two or three grains to twenty, according to the age and strength of the patient.

The foregoing are the different preparations of antimony, but the two that are most useful in veterinary medicine, are the butter of antimony and the cenetic tartar. The first is an excellent and safe escharotic, and the last is a useful diaphoretic, and is given with the best effect in all inflammatory complaints, especially in inflammation of the lungs.

ON THE BLOOD.

There are so many ridiculous and unfounded notions respecting the quality of blood, when it is taken from the horse during disease, that it becomes a matter of some importance to explain its true nature and composition. The blood is a red fluid, propelled by the heart and arteries and lungs through the whole body of an animal; and although this fluid, in some animals, is not of a red colour, yet it is certain, that the functions of the animal cannot be performed without the circulation of something equivalent to the blood. The common appearance of blood, when drawn from a vein, is of a red colour. It first appears throughout a red fluid; then it consolidates, when cold, into one uniform mass; but in a short time after, a yellowish watery liquor begins to separate from it, which is more or less in quantity according to the state in which the blood happens to be; the red mass, in the mean time, contracts greatly in its dimensions, and increases in solidity. But this increase of solidity is likewise proportional to the state of the blood at the time. In violent inflammatory diseases, the solid part is extremely tough, so that it is sometimes like a piece of flesh itself; but in diseases of the nervous kind, and those attended with exhaustion of the animal spirits, the solid part is very soft and tender, breaking in pieces with the slightest touch.

The blood of quadrupeds is pretty much of the same texture as the human. It consists, first, of serum; second, the coagulable lymph; third, the red globules; fourth, the superfluous water; fifth, extraneous substances introduced.

The serum, coagulable lymph, and superfluous water, are diffused through one another, and the red part is mechanically mixed with them. Some of the extraneous sub-

stances are also mechanically mixed with them, and some diffused through them. Dr. Hervey says, "Recent blood is equally fluid, and in taste somewhat saltish. Viewed through a microscope, it appears composed of numerous red globules, swimming in a transparent fluid. On standing fo. a little time, it separates into a thick crassamentum and fluid serum. By agitation, it continues fluid, a consistent gelatinous matter adheres to the stirrer, which, by repeated ablution with water, becomes white. Received from the vein in warm water, it deposits a quantity of transparent filamentous matter, the red portion continuing dissolved in the water. On evaporating the fluid, a red powder is left. It congeals by frost, and becomes fluid again by warmth; after liquification, it quickly putrifies. Fluid and florid blood, exposed to a temperate air, putrifies sooner than that which is more dense. Inspissated to dryness, it leaves a dark coloured mass, amounting, at a medium, to about one fourth of the blood, of a bitter saline taste, easily inflammable, burning with a bluish flame. The dried blood is not soluble in acid or alkaline liquors, but gives some tincture to water and to spirit of wine, and is more powerfully acted upon by dulcified spirit of nitre.

Blood recently drawn, is coagulated by the mineral acids, and by most of the combinations of them with earthy and metallic bodies. With vegetable acids and with solutions of neutral salts, it mingles equally without coagulation. Alkalies, both fixed and volatile, render it more fluid, and preserve it from coagulating. The serum of the blood is more saline than the crassamentum, and does not speedily petrify. It freezes with somewhat more difficulty than pure water, and its aqueous part evaporates by a gentle warmth, somewhat more readily, leaving about one twelfth of the weight of the serum, of a yellowish pellucid matter. Exposed to heat, a little greater than that of the human body, it coagulates into a solid mass without any considerable evaporation. Both this coagulum and the inspissated serum are readily inflammable in the fire, and not dissoluble in water or in spirit of wine, in acid, or in alkaline liquors.

But the texture of the blood, discoverable by a microscope, has engaged the attention of the learned much more than the chemical analysis ever did. Lewenhoek fancied he discovered, that the blood consists of red globular particles, swimming in a quantity of transparent liquor, each globule, composed of six smaller ones, packed together.

While the six continued to adhere, their colour was red, but when separated, they became yellow, and thus formed what is called the serum. He even imagined he had discovered that each of the serous globules consisted of six smaller ones, and that these, when broken down, constituted some more subtle and penetrating liquor than the serum; and this was, for a long time, received as an undoubted fact, and many theories were built upon it, and elaborate calculations made.

Father de Torre also, with microscopes, which he alledged were capable of magnifying to an incredible degree, found that the red particles of the blood were of an annular figure, with a perforation in the middle; and that the ring itself was formed of several

oints. Dr. Duncan, of Edinburgh, was of the same opinion. Mr. Hewson, however, has since contended, that the red particles of the blood, improperly called globules, are flat in all animals, and of very different sizes in different animals. In man they are small, as flat as a shilling, and appear to have a dark spot in the middle. In order to see them distinctly, Mr. Hewson diluted the blood with fresh serum; his predecessors, not having thought of this, could not see them distinctly. And Lewenhoek, in particular, imagining a round figure to be fittest for motion, concluded they must be round in the human body, though he and others allowed, that in frogs, &c. where they viewed them distinctly from the blood being thinner, they were flat. In the human blood, where these particles are small, it is difficult to determine what that black spot is which appears in the centre of each. Some have concluded, that it was a perforation, but in a frog, where it is six times as large as in a man, it is easy to shew, that it is not a perforation, but, on the contrary, is a little solid, which is contained in the middle of a vesicle. Instead, therefore, of calling this part red globules, it should be called red vesicles, for each particle is a flat vesicle, with a little solid sphere in its centre.

The blood of all animals, (he says,) contains vesicles of this sort. In human blood there are millions of them, and they give it the red colour. But in insects they are white, and less numerous in proportion than in man and quadrupeds. As they are flat in all animals, that shape is probably a circumstance of some importance, but can be altered by a mixture with different fluids. And it is found, that by a determinate quantity of neutral salt contained in the serum, that this fluid is adapted to preserving those vesicles in their flat shape; for if they be mixed with water, they become round and dissolve perfectly; but add a little of any neutral salt to the water, and they remain in it without any alteration in their shape, and without dissolving. Now, when it is considered, that the blood of all animals is filled with these particles, we must believe, that they serve some very important purpose in the animal economy; and since they are so complicated in their structure, it is improbable that they should be made by mechanical agitation in the lungs or blood-vessels, as has been suspected, but probably have some organs set apart for their formation. In the blood taken from a toad or a frog, these particles are very large, and when mixed with the serum of human blood to dilate it, they all appear flat, and this may be easily seen by the web between the toes, when seen through a microscope. Their appearance in these animals is not unlike slices of cucumber. A little blood mixed with water immediately makes them all round, and then it begins to dissolve them whilst they are round. By inclining the stage of the microscope, so as to make them roll down, the solid in the middle may be easily seen rolling down from side to side like a pea in a bladder. A neutral salt added to them at that time, brings them back to their flat shape, but if the salt be not added, the water gradually dissolves away the vesicle, and then the little sphere is left naked. Such is the composition of these particles. The microscope which is made use of may be composed

of a single lens, and in that case will be as little likely to deceive as a pair of spectacles, which do not disfigure objects, but only render them larger.

From further experiment, it has been supposed that the use of the thymus and lymphatic glands is to make the middle solid pieces; and the same author further says, "I can prove it, in as satisfactory a manner as can be done, in regard to the use of any other viscus in the human body, that is, by opening these glands, and examining the fluid contained in their cells, which I find to be full of these little solids. I, moreover, find that the lymphatic vessels take them up from those glands, and convey them into the blood-vessels which carry them to the spleen, in whose cells they have the vesicles, so that the thymus and lymphatic glands make the central particles, and the spleen makes the vesicles that surround them. That this is the use of the spleen appears from examining the lymph, which is returned from its lymphatic vessels; for that lymph, contrary to what takes place in other parts of the body, is extremely red. But besides having these glands set apart for making he red vesicles of the blood, I find, that they are also made in the lymphatic vessels, in different parts of the body, whose coats have blood-vessels properly constructed for this secretion. So that the thymus and lymphatic glands are no more than appendages of the lymphatic system, for making the middle particles, and the spleen an appendage to the lymphatic vessels for making the vesicles which contain these middle particles. It is probable, that it is the coagulable lymph which is converted into this red part of the blood, from a curious fact that has been long known, namely, that the blood in the splenic vein does not coagulate when exposed to the air, as the blood of other veins does, so that it seems to be robbed of its coagulable lymph in passing through the spleen. It is very remarkable, that the spleen can be cut out of an animal, and the animal live without it. This experiment has been made on a dog, which was kept alive a year and a half after the operation, without his health being apparently impaired. From this circumstance, some have concluded the spleen to be an useless weight; which is an absurd conclusion, when it is considered that all animals that have red blood have it. Therefore, it is more consistent with what is known of the animal economy, to conclude that since an animal can do without it, there is probably some other part of the body that can supply its place.

"Insects have vesicles constructed in a similar way to ours, but differing in colour. But insects have neither spleen, thymus, nor lymphatic glands, and, therefore, in them probably these vesicles are entirely fabricated in the lymphatic vessels. But to us, and other of the more perfect animals, besides the lymphatic vessels, nature has given these glands, that a proper quantity of these important vesicles might be the better secured to it, on the same principle that she has given us two ears, the better to secure hearing through life, though we can hear perfectly well with one." On the foregoing hypothesis it will only be necessary to remark, that if the red globules are prepared in the manner above mentioned, and the

lymphatic vessels are excretories of these glands where the red particles are formed; then, if there is any vessel where all these excretories unite, in that vessel the lymph ought to appear very red, on account of the accumulated quantity of red globules brought thither from all parts of the body. But no such redness seems ever to have been taken notice of by any anatomist, and this forms an objection, perhaps, which will not be easily removed.

Many other hypotheses have been invented concerning the formation of blood, and various opinions delivered concerning its red colour. In a lecture delivered at Newcastle, in 1773, by Dr. Wilson, of that place, he asserts, that "it is evidently the office of the veins to elaborate the fluids into that form and composition which we know by the name of red blood." Dr. Cullen, in the physiological part of his institutions of medicine, acknowledges that we know but little of the formation of any of the animal fluids; and, concerning the microscopical observations on the blood, gives his opinions in the following words, viz. "The red globules have been considered as an oily matter, and from thence their distinct and globular appearance has been accounted for; but there is no direct proof of their oily nature; and their ready union with, and their diffusibility in water, renders it very improbable. As being microscopical objects only, they have been represented, by different persons, very differently. Some have thought them spherical bodies, but divisible into six parts, each of which, in its separate state, was also spherical; but other persons have not observed them to be thus divisible. To many observers they have appeared as perfectly spherical, while others suppose them to be oblate spheroids, or lenticular. To some they have appeared as annular, and to others as containing a hollow vesicle." All this, with several other circumstances relating to them, very variously represented, shew some uncertainty in microscopical observations. The chemical history of it is equally precarious, and, therefore, what has been hitherto said of the production and changes happening to these red globules, we choose to leave untouched. It is probable, that the red globules, when viewed singly, have very little colour, and that it is only when a certain number of them are laid upon one another, that the colour appears of a bright red; but this, also, has its limits; so that when the number of globules laid on one another is considerable, the colour becomes of a darker red. Upon this supposition, the colour of the mass of blood will be brighter or darker as the colouring matter is more or less diffused among the other parts of the mass, and we think this appears truly to be the case, from every circumstance that attends the changes which have been at any time observed in the colour of the blood.

Concerning the uncertainty of microscopical as well as chemical experiments, we shall not dispute, though the conclusion against them seems to be carried too far. But with regard to the colour of the blood, we apprehend it has been known, almost, if not altogether, since the discovery of the circulation, that the florid or dark colour depends on the presence or absence of that part of atmospheric air called oxygen, and not upon any number of globules.

Thus the blood returning from the veins is of a dark colour. Though diluted with the fresh chyle from the subclavian vein, it continues of the same dark colour till it passes through the lungs, upon which it instantly assumes a very florid red; but it can never be proved that the globules in the pulmonary vein are at all less numerous than in the pulmonary artery. That this change of colour may be effected by the air passing through membranes much thicker than we can suppose the vessels of the lungs to be, has been demonstrated by Dr. Priestly.

With regard to the uses to which the blood is subservient in the animal economy, they are so various, and of such an important nature, that some have not scrupled to affirm the blood to be actually possessed of a living principle, and that the life of the whole body is derived from it. This opinion, it is said, was first hinted by the celebrated Hervey, but the hypothesis more properly belongs to the late Mr. John Hunter, who supports his opinions by the following arguments:—first, that the blood unites living parts, in some circumstances, as certain as the recent juices of the branch of one tree unite it with that of another. Were either of these fluids to be considered as extraneous, or dead matter, he thinks they would act as stimuli, and no union would take place in the animal or vegetable kingdom. This argument, he imagined, was still further established by the following experiment:—Having taken off the testicle from a living cock, he introduced it into the belly of a living hen. Many weeks after, upon injecting the liver of the hen, he injected the testicle of the cock, which had come in contact with the liver, and had adhered to it. He thought, also, that there was not a more intimate connection between life and a solid, than between life and a fluid. For though we are more accustomed to connect it with the one than with the other, yet the only real difference which can be shewn between a solid and a fluid is, that the particles of the one are less moveable among themselves than those of the other. Besides, we often see the same body fluid in one case and solid in another.

The blood becomes vascular like other living parts. Mr. Hunter affirms, that after amputations, the coagula in the extremities of arteries may be injected by injecting those arteries, and he had a preparation in which he thought he could demonstrate vessels rising from the centre of what had been a coagulum of blood, and opening into the stream of the circulating blood.

Blood, taken from the arm in the most intense cold which the human body can bear, raises the thermometer to the same height as blood taken in the most sultry heat. This he considers as a strong proof of the blood being alive, as living bodies alone have the power of resisting great degrees of heat as well as cold, and of maintaining, in almost every situation, while in health, that temperature which we distinguish by the name of animal heat. Blood is capable of being acted upon by a stimulus. In proof of this, he observes, that it coagulates from exposure, as certainly as the cavities of the abdomen and thorax inflame from the same cause.

The more the animal is in health, the

sooner it coagulates from exposure; and the more it has lost its living principle, as is the case in violent inflammations, the less it is sensible to the stimulus produced from its being exposed, and it coagulates the later. The blood preserves life in different parts of the body. When the nerves, going to a part, are tied or cut, the part becomes paralysed, and loses all power of motion, but it does not mortify. If the artery be cut, the part dies, and mortification ensues. Mr. Hunter, therefore, thought, that, in the first case, it is the living principle of the blood only that can keep it alive; and, he thought that this phenomenon was inexplicable on any other principle than that life is supported by the blood. Another argument he drew from the case of a fractured os humeri he had occasion to observe. A man was brought into St. George's Hospital for a simple fracture of the os humeri, and died about a month after the accident. As the bones had not united, Mr. Hunter injected the arm after death. He found that the cavity between the extremities of the bones was filled up with blood which had coagulated. This blood was become vascular. In some places it was very much so. But he did not maintain, from this circumstance, that all coagulated blood becomes vascular; and, indeed, the reason is obvious, for it is often thrown out and coagulated in parts where its becoming vascular could answer no end in the system; as, for example, in the cavities of ancurismal sacs. If it be supposed, that, in such cases as that just now mentioned, the vessels are not formed in the coagulum, but come from the neighbouring arteries, he thinks it equally an argument that the blood is alive; for the substance into which vessels shoot must be so.

The system which, at present, stands opposed to that of Mr. Hunter, considers the brain and nervous system as the fountain of life; and that, so far from receiving its life from the blood, the nervous system is capable of changing instantaneously the crasis of the blood, or any other animal fluid; and though the nervous system cannot continue its action for any length of time if the action of the blood vessels is suspended, yet the heart and blood-vessels cannot act for a single moment without the influence of the nervous system. Hence, say they, it is plain we must suppose the nervous system, and not the blood, to contain properly the life of the animal, and consequently to be the principal vital organ. The secretion of the vital fluid from the blood, by means of the brain, is denied by the supporters of this hypothesis. They say, that any fluid secreted from the blood must be aqueous, inelastic, and inactive; whereas, the nervous fluid is full of vigour, elastic, and volatile in the highest degree. The great necessity for the circulation of the blood through all parts of the body, notwithstanding the pressure of the nervous fluid in the same parts, they say, is because some degree of tension is necessary to be given to the fibres, in order to fit them for the influx of the nervous fluid; and this tension they receive from the repletion of the blood-vessels, which are every where dispersed along with the nerves.

It would prove tedious to follow this dispute through every argument that hath been, or that may be, used by both parties, and indeed it appears unnecessary, as the follow-

ing short considerations seem to decide the matter absolutely against the patrons of the nervous system. In the first place, then, if it can be proved, that the life of the human body has existed in, or has been communicated from, a fluid in the nervous system, the analogical argument will be very strongly in favor of the conclusion that the case is so still. That the case ever has been so is most evident, for the human body, as well as the body of every other animal, in its first state, is well known to be a gelatinous mass, without muscles, nerves, or blood-vessels. Nevertheless, this gelatinous matter, even at that time, contained the nervous fluid. Of this there can be no doubt, because the nerves were formed out of it, and had their power originally from it; and what is remarkable, the brain is observed to be that part of the animal which is first formed. Of this gelatinous fluid we can give no other account than that it was the nutritious matter from which the whole body appears to have been formed. At the original formation of man, and other animals, therefore, the nutritious matter was the substance of the whole body, consisting of muscles, nerves, and blood-vessels; nay, more, it was the immediate efficient cause of the nervous power itself. And what reason is there to suppose that this system of nature has been changed. In the formation of the embryo, we see a vital principle, existing, as it were, at large, and forming to itself a kind of regulator to its own motions, or a habitation in which it chooses to reside, rather than to act at random in the fluid. This habitation or regulator was, undoubtedly, the nervous system, and continues so to this moment, but, at the same time, it is no less evident, that a nutritious fluid was the immediate origin of these same nerves, and of that very nervous fluid. Now, it is known, that the fluid which, in the womb, nourishes the body of the fœtus, is necessarily equivalent to the blood which nourishes the bodies of adult ones, and, consequently, as soon as the blood became the only nutritious fluid of the body, at that same time the vital or nervous fluid took up its residence there, and from the blood diffused itself along the nerves, where it was regulated exactly according to the model originally formed in the embryo. It may, perhaps, be said, that the vital power, when once it hath taken possession of the human or any other body, requires no addition or supply, but continues there in the same quantity from first to last. If we suppose the nervous power to be immaterial, this will, indeed, be the case; but, if we call this power a volatile and elastic fluid, it is plain there will be more occasion for recruits to such a power than to any other fluid of the body, as its volatility and elasticity will promote its escape in great quantities through every part of the body. It may also be objected, that it is absurd to suppose any fluid or mechanical cause capable of putting matter in such a form as to direct its own motions in a particular way; but even of this we have a positive proof, in the case of the electric fluid; for if any quantity of this matter has a tendency to go from one place to another, where it meets with difficulty, through the air, for instance, it will throw small conducting substances before it, in order to facilitate its progress.

Also, if a number of small and light con-

ducting substances are laid between two metallic bodies, so as to form a circle; for example, a shock of electricity will destroy that circle, and place the small conducting substances nearer to a strait line, between the two metals, as if the fluid knew there was a shorter passage, and resolved to take that if it should have occasion to return. Lastly, it is universally allowed, that the brain is a secretory organ, made up of an infinite number of small glands, which have no other extremities than the medullary fibres and nerves. As a considerable quantity of blood is carried to the brain, and the minute arteries end in these same glands, it follows that the fluid, whatever it is, must come from the blood.

Now there is no gland whatever, in the human or any other body, that will discharge the fluid it is appointed to secrete, in very considerable quantities if its excretory is cut. Upon the cutting of a nerve, therefore, the fluid secreted by the brain ought to be discharged, but no such discharge is visible.

A small quantity of glairy matter is indeed discharged from the large nerves, but this can be of no other sort than the nutritious juice necessary for their support.

The blood circulates in a given time through every part of the living body. It is first carried from the heart by means of vessels, called arteries, which contract and dilate in unison with the action of the heart, which may be easily ascertained by pressing an artery with the finger.

This action is called the pulse, and much of the state of the animal, as to health or disease, may be ascertained by attending to the number and strength of the pulsations in a minute.

The circulation is performed as follows: namely, the blood passes from the vena cava into the right auricle of the heart, and from thence into the right ventricle, from whence the heart pushes it, by contracting into the pulmonary artery, by which it is afterwards carried through the whole substance of the lungs, where, by entering into contact with the atmospheric air, which is inhaled into the lungs, it acquires a new quality, and becomes of a much brighter red. It is then called arterial blood, and, passing through the left auricle and ventricle of the heart, it is carried on by the arteries to the remotest part of the body, where it parts with its oxidation, and having lost its brightness, is returned to the heart by the veins, and goes again through the same process as before.

ON THE BONES.

The bones are the hardest of all the parts of an animal body. This was necessary to render them capable of supporting the bulk and weight of the muscles. They are connected with each other by joints, by which means they are susceptible of motion when acted upon by the muscles.

The bones differ but little in their shape in different horses, but there is sometimes a very considerable variation in their relative position with each other; and, from this circumstance may be deduced, in a great measure, that inequality in speed which prevails amongst them; for, according to the position of the bone, the leverage will be either increased or diminished.

The first which naturally come under consideration are the bones of the head, which, including those peculiar to the skull, and those which are common to it and the upper jaw, are seventeen in number. The first is the frontal or forehead-bone, and in colts, and other young animals, is divided by a suture or seam down the middle, which in time totally wears out. The two side-bones, called the parietal, or walls, are divided by a seam, which reaches along the middle of the head, from the forehead to the occipital bone. These are small in a horse in proportion to what they are in a man; because, the greatest bulk of a horse's head lies forward. All the bones of the head are joined together by sutures, or seams, indented into each other, which is the only way by which bones of that shape could be united, so as to answer all the functions of the head and brain. Besides these principal bones are the temporal bones. They are thick, and very hard in their middle and lower part, but grow thinner, especially round their upper edges. The bones common to the head and upper jaw, are the cuniforme or wedge-like bone, the yoke-like bone, and the os cribriformis, or sieve-like bone: the other eight that make up the seventeen belong to the ear. They form the organ of hearing, and lie within the temporal bones, viz. four on each side.

Several blood-vessels pass through the sutures of the skull, by which the blood has its egress and regress from the brain to the external parts of the head, and from thence back to the brain. And, besides these, there are holes and perforations in many parts of the substance of the skull, for other vessels that spread themselves both externally and internally over the head and brain; and, particularly, five very distinct ones in the occiput, besides its great perforation towards its bottom, by which the spinal marrow passes

downwards, through the vertebra of the spine. There are, also, many foramina through the os cribriformis towards the nose and the larger emunctories, for the passage of several nerves and blood-vessels, with others, towards the eyes and ears. On the inside of the skull are several impressions, or furrows, made by the larger vessels of the dura mater, or uppermost membrane of the brain, which vessels form these traces in the fœtus before the skull acquires its hardness. The inside of the skull has also, in many other places, inequalities, answering to the cortical part of the brain, whereby the cranium becomes a proper helmet of defence for the brain. With respect to the secretion and growth of the bones of the skull, they begin always to ossify towards their middle or most projecting part, and to extend that hardness by degress to the edges where they are joined and indented into one another.

This kind of mechanism prevents the ill consequence of many accidents, to which all young animals are exposed. But, afterwards, the bones of a horse's head grow so extremely hard that no common force is able to part them asunder.

But, towards the nose, the bones are more spongy, and made up of several cartilages, which are very tender and sensible; and we often observe bruitish people beat their horses over the nose, as the surest way to give them pain, and rouse them, when they happen to be dull or obstinate.

The cuneiform, or wedge-like bone, is joined before to the frontal or forehead-bone, and behind to the lower part of the occipital bone, and so makes the bottom or basis of the skull like a wedge, between it and the upper jaw. It has perforations, which give passage to the carotid artery and jugular vein, &c. the principal vessels belonging to the head. The os cribriforme, or sieve-like bone, already mentioned, gives a passage to several blood-vessels and nerves; some to the nose, some to the eyes, and some to the ears; contributing to the senses of seeing, hearing, and smelling; it also divides the nostrils, and has several cavities filled with spongy flesh. The superior maxillary, or upper jaw-bone, is joined to these, and has a little process that passes to the lower part of the orbit of the eye, which forms part of that orbit. The cheek-bone, which is also part of the upper jaw, has a very large sinus, or hollow, below the eye, on each side, which, in a horse, is divided by four bony partitions that open into the nose; there is also a little hole on each side, through each of which an excretory duct passes, to carry off the superfluous fluid from the lachrymal gland, situated on the inner corner of the eye. On the lower part are the alveoli, or sockets for the teeth, which, including the tushes, are twenty in number; viz. six fore-teeth, and twelve double-teeth backwards, called the grinders; viz. six on each side. The lower jaw differs from the upper jaw, in being moveable, being joined and articulated into the sinuses of the lower part of the temporal bone.

In young animals, it is divided between the fore-teeth, so that the bones may be easily parted asunder.

On its lower edge it is round and smooth, and hollow within, containing several cells, filled with medullary substance. Through it are several holes, and, under the teeth, apertures for the passage of blood-vessels and nerves. The middle or flat part is more

solid, and along the inner edge are the alveoli, or sockets for the teeth, which are the same as in the upper jaw; viz. six forwards, two tushes, and six on each side backwards; making in all, above and below, forty in number.

The bone which is attached to the tongue, is called the os hyoides, from the resemblance it has to the Greek letter ,. It has its proper muscles, which take their rise from, or are inserted into it, besides others that go to the palate and larynx, which also have their origin from this bone. *The vertebræ come next to be described.* The neck has seven vertebræ, the back seventeen; the loins consist of seven, the croup six, and the rump or tail eighteen.

The vertebræ of the neck have their spines round and smooth, with a hollowness between them on each side for the muscles and ligaments, which fill up their cavities; the uppermost has a process that is received by the second, upon which the head turns from side to side, like a door upon its hinges, and yet is so fixed to the head and ligaments that it cannot go beyond its limits. The seventeen vertebræ, or joints of the back, are different from those of the neck, having their spines very high, especially on the withers, which rise archways, and are like a palisade or rail. These spines are pretty solid in the middle, and of a texture like the ribs, only that their tops are broad, soft, and spongy, covered with a very smooth and strong ligament, to keep them united and preserve the back from being bruised. Below, and beyond the withers, and along the seat, the spines are shorter and of equal height, till they approach towards the loins, where they rise higher, especially in roach-backed horses, but behind they are more level as they descend towards the rump. Every one of these bones, from the first vertebræ of the neck to the last of the loins, has a large central perforation for the spinal marrow, which issues from the brain, and passes along towards the rump, where it ends. The bones of the tail are eighteen in number: they have no medulla within them as above described, and, therefore, are not perforated. They are soft and spongy, and more loosely connected by soft and yielding cartilages, so that they may be easily separated and curtailed in any part without danger. They are large towards the rump, and short, but grow gradually smaller and longer till they end in a point.

The ribs, in all thirty-four in number, are distinguished into two sets, the true and false.

The true are the foremost nine on each side, which are also joined to the vertebræ of the back and to the breast-bone, encompassing the whole cavity. The breast-bone in a horse, and some other quadrupeds, is shaped like the bottom of a ship. It is at first spongy, but, in time, grows pretty hard, and has along its two sides cartilaginous dents and impressions, where it receives the ends of the true ribs.

The part which reaches towards the pit of the stomach is called the ensiform, or sword-like cartilage, having a point resembling that of a sword. The false ribs are in number eight on each side. They are not so strong and rigid as the true ribs, and grow shorter as they approach towards the loins, leaving an opening for the stomach and belly. The shape of a horse's belly depends much on the length or shortness of these ribs, for the larger they are in compass the more

round a horse appears, and when they are very short, such horses can never carry a good belly. All the ribs are thick and strong towards the back, but towards the brisket and belly they are thin and flat, by which they are endowed with a kind of elasticity, which enables them to dilate or contract in respiration; and some think, when they are well-proportioned, they add considerably to the goodness of a horse's wind. All the ribs on their insides are exquisitely smooth, and covered with the pleura, a membrane resembling the finest satin, so that the lungs and other viscera may not be hurt by contact with them.

The scapula, or shoulder blade-bone, lies like a shield from below the withers, to the point of the os humeri or shoulder-bone, which bone turns backwards to the elbow, forming an angle.

The blade has a high spine or ridge along its middle, on the outside, and is joined to the ribs by its muscles, which have very strong tendons. The lower end has a slender cavity, which receives the round head of the shoulder-bone, and because of its shallowness, is environed with a very tough cartilaginous substance, and covered over with a broad and very strong ligament, like a purse, which not only prevents the round head of the shoulder-bone from slipping out, but affords the shoulder an easy play, and adapts it to all its necessary motions.

The shoulder-blade in a horse should lie oblique towards the saddle, for upon this much of the pleasantness and speed of his action depends. If the blade-bone be too upright, the motion of the shoulder will be confined, and the fore-leg cannot be advanced so far, nor thrown forward with that ease and celerity as is the case when it is more oblique.

Hence it must be evident, that whatever powers of speed may be possessed by the hind-quarters, still they cannot be exerted to the best advantage if the fore-legs are not thrown out of their way with the same quickness and freedom as the hind-legs. In chusing a horse, therefore, particularly for the road, it should be borne in mind, that the position of the shoulders is of the first importance. The shoulder-bone in a horse, and in most other quadrupeds, is very short from the shoulder to the elbow, where it is joined to the cubit or fore-leg by strong ligaments. It has at its lower end two processes, and on the hinder and upper part of the leg-bone is a high thin process which enters between the two processes, and makes the elbow-joint. The high thin process forms the point of the elbow, and as it rises higher than the articulation of the joint, prevents the leg turning backwards by a counter-motion.

The leg-bone is joined at the knee to the shank, which bones receive and are received into one another. This joint has two ranges of little bones within the bending of the knee; namely, three in the first range, and four in the second, that not only strengthen that joint which could have no stability without them, but render its motions more safe and easy. These are connected together by ligaments that are partly tendinous and partly cartilaginous. The shank is that bone which reaches from the knee to the great pastern; it is composed of three bones, one large, and the two other resembling bodkins, but thick and round upwards, and small downwards.

The great pastern has taree small processes, which are received into three cavities of the shank-bone, and two cavities which receive two processes of the same bone, and has two small triangular bones fastened to its back part, which form the fetlock, and one also like a stay, to preserve the joint from false motions, which would very much strain the ligaments. The little pastern is joined to the great pastern in so curious a manner, that both seem externally to be but one.

By this juncture the pasterns yield and give way when a horse is pressed with great weight upon his back, which otherwise, by their position, would be apt to break. It also increases the elasticity of the motion of the animal, and renders it more easy and pleasant to the rider. The lower end of the lesser pastern is articulated, and joined to the coffin-bone by two heads, and to the upper or great pastern in the same manner as it is received into the coffin-bone. The bones which form the hind-quarters of a horse, are the ossa innominata, divided into the hip, haunch, and share-bones.

The first is the os ilium, so called from the gut ilium that lies underneath it. The second is the pubis, which makes a small arch at the extremity of the lower belly, through which the penis passes, at the entrance of which is the neck of the bladder. The third is called the ischium, and has on each side a large round cavity, which receives the round head of the thigh-bone. These bones are joined on their posterior or upper part to the os sacrum by cartilages, which, in time, grow so hard that they can scarce be separated. The os sacrum is the bone that lies under the crupper, next the rump, and this, with the ossa innominata, form the pubis. It is also joined to the lowest of the lumbar vertebræ, and with the uppermost bone of the rump.

The thigh bone reaches from the hip to the stifle; its upper head is round and somewhat long, that it may the better fill up the acetabulum or cup of the hip-bone, and as it turns backwards and forwards within this cup, or cavity, upon the alternate motions of a horse's leg; it is therefore, in the common phrase, called the whirl-bone.

The lower end of this bone has two processes like a pulley, between which is a large space that receives the protuberance of the leg-bone, which is the bone that reaches from the stifle to the hock; there is a middle space, pretty large and deep, between these two bones, where they join that which receives the under side of the stifle-bone, which is the knee-pan of a horse.

The small bones of the hock are in number the same as those of the knee, viz. three in the first range and four in the second; they are also articulated with the instep, as those of the knee are with the shank.

By their extreme smoothness they facilitate the motion of the joint, preserve the horse's legs from doubling under him when he is put on his haunches, and give a kind of spring in vaulting, leaping, or any other forcible action of the hind-legs. The instep is made up of three bones, so closely united that they seem to be but one, and cannot be easily separated, much in the same way as the shank-bone already described. The pasterns and coffin-bone agree also in every respect with those of the fore-feet.

When inflammation takes place in the hock-joint, the small bones above-mentioned

become sometimes united in nearly one mass, by bony matter being thrown out among them, and a protuberance arises at the lower and inside part of the joint, which constitutes what is called a bone-spavin.

When the inflammation takes place in the pastern-joint, the same kind of union sometimes arises from the same cause, and a protuberance is formed on the surface, occasioning what is called a ring-bone.

In either of these cases, if the union has once taken place, (and which, in the language of anatomy, is known by the term *anchylosis*) the different bones cannot be again separated, and a stiffness or lameness generally ensues, and which is almost always incurable.

All the long bones, such as the shoulder and thigh-bones, the bones of the leg, of the shank and instep, are hollow and tubular, and contain a substance called marrow, which serves instead of oil, to keep them from growing too hard and brittle. Towards their extremities, however, they are imperforated, but their substance is spongy, and their interstices when cut appear bloody, especially in young animals, which is a provision of nature against their being broke very near, which would almost always produce incurable lameness. Over each end they have an epiphysis, covered with an insensible cartilage or gristle, calculated to make their actions smooth, so that their motions may induce no pain.

The larger joints, such as the shoulder, the hip, and the stifle, have not only very strong ligaments of various contrivance, to keep them in their places, as has been observed, but they also have glands that separate sinovia, an oily matter which continually preserves them moist, otherwise they would soon grow dry, and wear away their surfaces by frequent friction against each other.

All the bones have holes or perforations more or less, for the passage of nerves and blood-vessels, and, in several places, besides their common processes and protuberances, little asperities and roughnesses, for the origin and insertion of muscles, which are so situated as not only to add the greatest beauty, but also to be most subservient to their various motions.

Where none, or but little motion is intended, the bones are connected in a more compact manner, as in the bones of the head, the vertebræ of the back and loins, the os sacrum, and bones of the hip. Yet all these junctures are useful and necessary, and contrived with great wisdom, as may be particularly instanced in the sutures of the head, by which the fissure or cleft can run quite across, but must terminate in one of these. The vertebræ, or joints of the neck, having no sharp spines, but somewhat resembling the link of a chain, are admirably fitted to give a beautiful turn to the neck, and to render all the necessary motions of the head practicable. The vertebræ of the back are also so connected together with yielding cartilages, as to admit of all necessary flexion; yet, at the same time, they are so confined by their spines and processes, and by antagonist muscles, that they cannot be distorted beyond their proper limits. If these were altogether without motion, it is evident the whole body must also in a great measure be immoveable.

On the other hand, the bones of the hips,

with the os sacrum, are joined in so compact a manner, as shews them to have a very limited degree of motion in themselves; but they are so placed as to give the greater certainty to the motion of the hind-legs, and the compactness of the vertebræ between the shoulders, and the anterior portion of the spine has the same effect on the fore-legs, so that there is nothing wanting in the skeleton to render all the actions of a horse complete and harmonious.

The physiology of the bones has been greatly extended by Mr. Hunter's curious experiments and observations on the growth of bones.

Duhamel has published a very ingenious theory upon the growth of bones, which he endeavoured to support by experiments, tending to prove that bones grow by an extension of these parts: with this doctrine, Mr. Hunter was not satisfied, and he accordingly instituted experiments to determine the truth of Duhamel's opinion.

He began his experiments by feeding animals with madder, which has the property of tinging with a red colour that part of the bone which is added, while the animal is confined to this particular food.

He fed two pigs with madder for a fortnight; and, at the end of that period, one of them was killed; the bones, upon examination externally, had a red appearance when sections were made of them; the exterior part of the bones was found of the natural colour, but the interior was red. He made many other experiments of the same kind, upon the increase of the thickness of the neck and head of the thigh-bone. From these it appeared, that the addition of new matter was made to the upper surface, and a proportional quantity of the old removed from the lower, so as to keep the neck of the same form, and relatively in its place.

To ascertain that the cylindrical bones are not elongated, by new matter being interposed between the interstices of the old, he made the following experiment

He bored two holes in the tibia of a pig, one near the upper end, and the other near the lower; the space between the holes was exactly two inches; a small leaden shot was inserted into each hole. When the bone had been increased by the growth of the animal, the pig was killed, and the space between the two shots was exactly two inches.

This experiment was repeated several times on different pigs, but the space between the two shots was never increased during the growth of the bone. Besides these experiments on the growth of bones, he made others to determine the process of their exfoliation.

He cauterised portions of bone in the same way in different animals, so as to be able to examine the bones in the different stages of the process, and found that the earthy part of the living bone, in contact with the dead portion, was first absorbed; afterwards, the animal mucilage itself, so as to form a groove between the two, which became deeper and deeper, till the dead bone was entirely detached, the dead portion having undergone no change.

THE ABDOMEN

Is that part of the animal which is commonly called the carcase, or belly, and it contains

most of the principal viscera, or organs essential to life.

On opening it, the first thing that appears is the peritoneum, which is a kind of bag, made of a thin membrane of pretty close texture, and yet capable of considerable extension, and of returning to its former state. This bag contains the greatest part of the viscera of the lower belly, but in a particular manner. In several parts of the convexity there are several depressions, which form a kind of cell, which contain the viscera within the peritoneum; namely, the gut, the stomach, the liver, and the spleen. The ligaments, which serve to sustain most of these viscera, are nothing else but a particular kind of doubling of the peritoneum, accompanied with a portion of the cellular and membranous web, filled with fat, which covers its external surface; such as the ligaments of the liver, the spleen, the uterus, and mesentery itself, which is the common ligament of the guts, and is formed by a doubling of the peritoneum, accompanied with the cellular web. This lies on the surface of the peritoneum, throughout its whole extent, and is of a particular texture, consisting of several membranous cells, by which the peritoneum is united to the sides of the belly. The parts contained in this web, which may be seen on opening the peritoneum, are the kidneys, the ureters, the bladder, the lower large blood-vessels, &c.

The internal surface of the peritoneum is smooth and sleek, and is continually kept moist by a serosity which transudes through the pores throughout its whole extent. This moisture is necessary to render the whole of the intestines more easy, because, otherwise, the friction would cause a painful sensation. The cellular web has four processes, two of which accompany the crural vessels, and the other two the spermatic vessels. These processes have been generally supposed to have been made by the peritoneum, but this is a mistake. The peritoneum being opened, all the viscera of the belly may be discovered. On the right side is the liver, and a part of the gut colon, but the horse has no gall-bladder. On the left side of the spleen, a part of the colon, the caul, the bottom of the stomach, and the pancreas; in the upper part may be perceived the two orifices of the stomach, the duodenum, the trunk of the vena porta, the lower vena cava, and the great artery.

The omentum, or caul, lies over the intestines, and is a very fine membrane, larded with fat, somewhat like net-work; it reaches from the bottom of the stomach to the umbilical region. It resembles an apron tucked up. The fore part of it is connected with the bottom of the stomach, with the duodenum and the spleen, and the hind part to the colon. The use of it is to preserve the suppleness of the fibres, of the guts, duodenum, and colon, to which it is connected; it also assists the liver in the preparation of the bile, and by its unctuosity abates the acrimony of the blood.

The æsophagus, or gullet, being a part of the intestinal canal, which is extended from the mouth to the anus, ought also to be noticed. It reaches from the bottom of the mouth to the diaphragm; next to this is a sort of bag, called the stomach, and the remainder hath the general name of intestines, or guts. The gullet descends along the

neck, behind the wind-pipe; the upper part, which is a little dilated, is called the pharynx. It has four coats, the first is common to the neighbouring part, the second is fleshy, and is composed of longitudinal and circular fibres, and the third consists of nervous or tendinous fibres, crossing each other every way; the fourth is called the villous coat; it is very porous, and always besmeared by a clammy liquor, proceeding from the glands lying behind it.

The stomach is a membranous bag, seated behind the diaphragm, or midriff; it is in shape like the bellows of a bag-pipe, and has two orifices, the right of which is joined to the gullet, and the left, named pylorus, to the guts. It consists of the same membranes and coats as the gullet.

The intestines, or guts, are six in number; namely, the small gut, which, in a man, is divided into the duodenum, the jejunum, and the ilium, and is commonly about twenty-six yards in length; the cæcum, or blind gut, the three colons, and the straight gut. The three colons are divided by two small necks, each about half a yard long. On the upper and under sides there are two ligaments, which run along the surface, and serve to purse up this gut, which, with a valve on the inside, serve to keep the aliment from passing off too hastily, that the nutritious juices may be extracted. The straight gut runs directly along from the colon to the fundament, and is half a yard long. The guts have the same coats as the gullet, but are considerably thicker in these last-mentioned, and like it are always moistened by the liquor proceeding from the glands. The guts are fastened to the back by the mesentery, which is about nine inches broad from the guts to the back. It takes its rise from the third vertebræ of the loins, and consists of two membranes, which are full of small glands and blood-vessels, and is formed by the doubling of the peritoneum. It forms several folds along its circumference, not unlike a ruffle, to which the small guts are connected. The next objects to be considered are the lacteals. These are a great number of small white vessels, which glide between the two membranes of the mesentery.

From this substance other lacteal veins proceed, which differ nothing from the former, but in being fewer in number, and somewhat larger. These are called secondary lacteals, and are discharged into a cellular and membranous bag, generally placed on the first vertebræ of the loins, and is hid in part of the right appendix of the diaphragm

This is called the receptacle of the chyle. From this reservatory the thoracic-duct proceeds, which runs along the vertebræ of the back, and towards the middle of the back turns to the left, and empties itself into a large vein, called the left subclavian.

The lacteal veins are not only to be met with in the small intestines, but also on the large, which shews, that an animal may be kept alive by nourishing clysters only.

The liver is a conglomerate gland of a very large size, of a reddish brown colour, and of a pretty firm consistence. It makes up a great part of the right side, and a portion of the epigastric region, immediately below the diaphragm or midriff. In a horse it is divided into four lobes, to render it flex-

ible in all violent motions, and to preserve it from danger. Of these, the right lobe is much the largest, and is called the great lobe of the liver. The shape of the liver is not regular, but accommodates its conformation to the adjacent parts. It is convex and smooth on the upper side, to tally with the diaphragm, to which it is connected, and whose motion it follows. The inferior surface is concave and unequal, having eminences and cavities which answer to the spaces that are between the organs. The eminences belong to the great lobe of the liver, to which the ancients gave the name of *portæ*.

The liver is connected to the adjacent parts, but chiefly to the midriff, by means of four ligaments Some reckon the umbilical veins a ligament, but this is very much doubted by others.

The liver is covered by a thin membrane, which, however, may be divided into two lamina, between which there is a great number of lymphatic vessels, which are observable both on the convex and concave surface. The internal lamina seems to penetrate the substance of the liver, and to divide it into a great number of small lobes, which may be easily distinguished in a hog.

The substance of the liver is an assemblage of a great number of small vessels of every kind, which appear to be distributed to a great number of vesicles, or small bodies, called by some pulpous grains. These vessels, thus distributed, may be distinguished into those that carry the fluid, and into those that bring it back. The first are the ramifications of the hepatic artery, of the vena porta, accompanied by the hepatic nerves.

The vena porta is a considerable trunk of a vein, formed by two principal branches, one of which receives the blood which comes from the spleen, the pancreas, and one part of the stomach. It is called the splenic vein. The other proceeds from the intestines and mesentery, and is called the mesenteric. This trunk of a vein penetrates the liver on the concave side, but before its entry forms two other branches, one to the right and the other to the left. There are also many smaller branches, which enter the vesicles of the liver. The other vessels which belong to the vesicles are the branches of the veins, which correspond with the vena cava, and discharge the remainder of the blood which the vena porta has deposited in the liver. The union of these branches form three veins, called the hepatic veins, which terminate in the trunk of the lower vena cava, immediately below the diaphragm.

The lymphatic veins of the liver may be seen on both sides, where they form a wonderful kind of net-work. These veins generally empty themselves into the reservoir, or receptacle of the chyle. The pulpous veins have each an excretory duct, which, communicating with each other in the substance of the liver, are commonly called the biliary pores.

When these ducts are united, they form a large one, called the hepatic duct, which discharges the bile into the small gut near the stomach. It is proportionably larger in the horse than in other animals, because he has no gall-bladder.

It has been supposed, that this deficiency was a provision of nature, because it might have been injured by violent motions; but this is not the case, because, many other

animals, that are subject to as violent exercise as a horse, are not without a gall-bladder; and, therefore, we shall not pretend to guess at the reason, or why a large and constant discharge of the bile is required in a horse more than in any other animal that feeds in the same manner.

The use of the liver is to separate this gall, or bile, already mentioned, and there is reason to believe it is from the blood brought by the vena portæ. The gall is a yellow bitter liquor, of a pretty fluid consistence, composed not only of a serum and salts, but also of unctuous particles, which form a liquor of a soapy nature, and nearly of the same taste, and is very useful to take old spots out of garments.

The gall being separated in the liver, it is taken up by the biliary pores, then runs into the hepatic duct, and is constantly discharged into the gut above-mentioned. It serves to correct the aliment, and to prepare the chyle.

The pancreas is a conglomerate gland, of a very pale red, and of a pretty thick consistence. It is seated in the epigastric region, transversely, immediately below the stomach, reaching from the small gut to the spleen, to which it is united.

The situation of the pancreas is such, that it may be reckoned to have two faces, an upper and a lower; two edges, the anterior and the posterior, and two extremities, one to the right and the other to the left; that to the right, which is connected with the gut, is most considerable. The pancreas is covered with two membranes, the one common and the other proper.

The common consists of the two leaves to the mesocolon, between which the pancreas is seated. The proper membrane immediately covers its substance, and is composed of many glandulous grains, beset with a vast number of vessels, some of which carry a fluid to the pancreas, and some bring one back from thence. The former are the arteries and nerves, the latter are the blood-veins and lymphatics, as well as the excretory ducts of the glands.

The excretory ducts of the pancreas are very numerous, perhaps as many as the glandulous grains of which it is composed. All these ducts unite with each other, and from their union results one common duct, which carries a fluid from them all. It is called the pancreatic duct, and runs all along the pancreas, through the middle of its length, and empties itself into the small gut.

The use of the pancreas is to separate a fluid, called the pancreatic juice, of the nature of saliva, and serves conjointly with the gall to bring the chyle to perfection.

The spleen consists of a softish substance, which is somewhat elastic, and is of a blueish colour, a little inclining to brown. It is seated obliquely in the left hypochondrium, under the diaphragm, and immediately above the left kidney. Its shape is rather long, tongue-like, and flattish. The spleen is kept in its situation, not only by resting on the adjacent viscera, but also by membranous ligaments which tie it to the diaphragm, and sometimes to the stomach itself, as also to the colon and the left kidney, by means of the caul and the blood-vessels. It has two faces; that turned towards the stomach is unequally concave, and that turned towards the ribs is convex. The principal artery of the spleen proceeds from

the cæliac, the vein empties itself into the vena porta. The nerves are very numerous, and form the splenic plexus. All these, when they enter into the spleen, are divided and subdivided into a great number of ramifications, and accompany each other to the last extremities of their divisions. They are contained in the common cellular capsules. The blood is extravasated among all these vessels, and kept in a web-like cotton, which is very fine, and spread throughout the whole extent of the spleen, and terminates in almost imperceptible cells which communicate with each other. The use of the spleen has not yet been clearly discovered. It is probable that the blood is detained by this means a great length of time in the spleen, in order to prepare it for the separation of the bile, which is afterwards to be performed in the liver.

The capsula atrabiliares, called by some the renal glands, are two glandulous bodies seated on each side, a little obliquely on the upper and more internal part of the kidney, and are joined to it by a fine cellular web, and are covered by the external tegument of the kidney itself, called the adipose membrane.

The substance of these renal glands is soft and spongy, covered with a fine membrane, and their colour is yellowish. In a fœtus they are as large as the kidneys. They have a cavity which contains a yellowish fluid, though said by some to be black. The use of these is hitherto unknown. The kidneys are two conglomerate glands of a firm consistence, and of a reddish brown colour. They are seated in the region of the loins, on the outside of the peritoneum, and within its cellular web, one on the right end and the other on the left, between the last of the false ribs and the bone called the ilium.

The right lies upon the lower part of the liver, and the other under the spleen, which last is commonly placed higher than the other. The right kidney is somewhat triangular, the left oval, with the higher part bigger than the lower. The arteries belonging to the kidneys are called the emulgent arteries, and are generally two, one for each kidney. The veins in the kidney accompany the arteries, and when they are united into one trunk, they are called the emulgent veins. A principal vessel belonging to the kidney is called the ureter. It is a membranous pipe which receives the urine, as it is separated by the kidney, to carry it to the bladder.

The kidney has two coverings; the first consists of the cellular web of the peritoneum, and generally contains a great deal of fat. This being removed, you may discover the proper tegument or covering of the kidney, which it surrounds. It consists of two laminæ, which are united by a fine cellular web, and between these the lymphatic vessels creep along.

The kidney is composed of three different substances; the first is the cortical, which consists of a great number of blood and absorbent vessels with glandulous grains. The second is tubulous, and is composed of urinary pipes, which change into the third substance, called the papillary, because it ends in ten or twelve papilla full of small holes, which open into the pelvis or bason. This last is the membranous cavity of the kidney, sending forth tubes or pipes which embrace the papillæ like funnels. The ureters are membranous canals, or pipes, which reach

from the kidneys to the bladder, wherein they are inserted obliquely above its neck. The coats are supposed to be like those of the guts.

The bladder is a membranous bag, whose situation is well known, and is connected to the peritoneum only by its posterior and superior part, and therefore may be opened without hurting that part. The fore and lower part is called the neck; its coats, like the intestines, are common, muscular, and mucous; this last being the inner is extremely sensible. Next to the neck of the bladder is the urethra, through which the urine is conveyed out of the body, and is much longer in horses than in mares. The bladder in horses is connected to the rectum or straight gut, and the seminal vessels; in mares to the vagina, and in both to the os pubis, by ligamentous and fleshy fibres.

In the middle of the upper part there is a ligamentous chord, called the *urachus*, which terminates at the navel, and is a continuation of the membranes of the bladder. The kidneys separate the excrementitious fluid from the blood, called the urine, which passes through the papillæ into the funnels, and from thence into the bason, and is conveyed by the ureter into the bladder, where it remains for some time by the help of a sphinctor which surrounds its neck, and stops its passage till an uneasy sensation arises, which causes a contraction of its muscular coat; then, with the assistance of the muscles of the belly, and the diaphragm, the resistance of the sphinctor is overcome, and so the urine escapes.

The urine is much of the same nature as the sweat, and they have such a relation to one another, that when the one is increased the other is diminished. The organs of generation consist of the testicles, or stones; their shape is oval, a little flattish on the sides their coverings are common and proper. The common is the skin in which they are contained, which is divided into two parts, the one right and the other left, which outwardly appears as a seam. The proper membranes are, first, the vaginal, which consists of several membranous cells, and is a continuation of the cellular web of the peritoneum, and covers the whole testicle as well as its vessels. The second is a reddish membrane, which adheres close to the former, and is only the expansion of a ligament. Under the vaginal coat there is a bag, proper to each testicle, which surrounds them, and is only connected with the epididimes. Lastly, the albugineous, which is strong, and adheres closely to the substance of the testicle. It receives the spermatic vessels, and transmits them to the testis.

The proper vessels are the spermatic arteries, which arise by a small beginning from the great artery and the spermatic veins.

The epididimes are two, one to each testicle, which lie on the superior part in the shape of a caterpillar. Their substance is vascular, and all the vessels open into one duct, called the vas deferens, by which it transmits the semen which it receives from the testes.

The vas deferens is a whitish pipe, which looks like a nerve, and reaches to the seminal vessels and the urethra itself. The seminal vessels are seated under the bladder, near its neck, and are divided into various cells, which communicate with each other. Each vessel has an excretory duct, which opens with a double orifice into the urethra on the

under side, near the neck of the bladder. The viscera contained in the chest are as follow; first, on opening the sternum of a horse there appears a smooth polished membrane, the pleura, attached to the upper surface; this membrane is there double, but unites about an inch above the sternum, and the space between the double reflection is filled by cellular substance posteriorly, and by the thymus gland anteriorly.

The space is called the inferior mediastinum; the two lamina then separating, pass over the pericardium and over the vessels to be reflected on the lungs; after having passed over the lungs, one portion goes over the spine on one side, the other portion over the spine on the other side, leaving in this division a tubular opening, filled by the aorta, cava, vena agygos, thoracic duct, and æsophagus. This forms the superior mediastinum. There are, therefore, two reflections of the pleura on each side, one close under the ribs, the other in contact with the lungs. A bag is formed by this reflection, but the lung is not contained within it as is usually described, but a small quantity of water, the liquor pleuræ; if this bag be cut into the lung, that side is rendered for a time useless, by the air being admitted and preventing its expansion; but the distinct separation, formed by the reflections of the pleura, preserves the functions and powers of the other lung entire, without which wise precaution accidents and diseases of these parts would be more injurious and more frequently fatal. The pleura has few arteries and veins, nor has it much sensibility, if any, when not inflamed; but, under inflammation, as takes place in pleurisy, peripneumony, &c. it has a great degree of it.

The mediastinum is simply the junction of the two lamina of the pleura, dividing by distinct partitions the cavity of the chest.

At the anterior and inferior division of the pleura, is situated the thymus gland; being under the aorta and vena cava near to their first divisions. It appears to be composed of two lobes, of considerable magnitude, and faintly red in the colt, but much darker and less in size in the grown horse, and scarcely discernible in old age. It was generally supposed to be largest in size some months after foaling, but it is now proved to exist larger in the fœtus previous to birth than at any subsequent period. From this, though its use is not fully understood, it appears more essential to the existence of the animal previous to birth than afterwards. It is supplied with vessels, called arteriæ and venæ thymicæ, and with nerves from a neighbouring plexus. The lungs, when inflated, are said to resemble the figure of the cloven foot of the ox. They are spongy in their texture, being every where full of little cavities, which are the minute ramifications or distributions of vessels termed bronchial, arising from one common trunk, called the trachia or windpipe. By means of these vessels, air is received throughout the substance of the lungs, depositing its oxygen; it is returned from thence, and fresh air admitted. The lungs move freely within the chest, or rather readily obey its motions. In this they are assisted by their being divided into lobes or separate portions, and further by the fluid contained.

In both the living and dead state, they leave no space between their surfaces and that of the inner-part of the chest, but are

always distended by the air to the capacity of the chest, as nature does not admit of a vacuum in any part of the body.

Between the lungs is placed the heart, supported in its situation by various attachments. It is covered by a membrane called pericardium. The pericardium, first, loosely invests the heart, then passes close over its surface, giving it a second covering. Between the one reflection and the other, is contained a quantity of water, called liquor-pericardii. The pericardium, where it loosely invests the heart, is more dense than the pleura; it has few arteries and veins, and apparently little sensibility; its internal surface is that which pours out the liquor pericardii. When this liquor abounds in too large a quantity, it is called a dropsy of the pericardium, and by occupying too much of the bag, it impedes, more or less, the motion of the heart, and if not removed occasions death.

The heart is of an eliptical form, its anterior and superior part is called its basis, the posterior and inferior part its apex. The basis is confined by vessels, the apex is loose, and strikes against the intercostal muscles, giving the pulse from the heart. It has four cavities within it, two placed on the right side, and two on the left. The first are for the circulation through the lungs, the second for circulation through the other parts of the body. The cavities on the right are divided from those on the left by a septum, or partition.

The left is smaller than the right, and its sides much thicker, its office being to drive the blood to the most distant parts of the body; whereas, the right ventricle detaches it only through the lungs. Its inside has several small cords or compages of fibres, called columnæ carneæ, which resemble the bundles of columns which we perceive in gothic buildings, and help to comminute and break the grosser parts of the blood in the frequent contraction of the heart. The contraction and dilatation of the heart is called its systole and its diastole.

The first, when the vertex or top of the heart is drawn down to its basis, to send the blood into all parts; and the latter, when it opens and dilates itself to receive the returning blood.

ON ANIMAL MATTER.

All bodies endowed with life and with spontaneous motion are called animals. These are all capable of reproducing their like; some, by the union of the two sexes, produce small living creatures; others lay eggs, which require a due temperature to produce young; some multiply without conjunction of sexes; and others are reproduced when cut in pieces, like the roots of plants.

All animals are fed on vegetables, either directly or by the intervention of other animals. No one part of their substance is derived from any other source except water. The small quantity of salt used by man, and some other animals, is only necessary as a seasoning or stimulus to the stomach.

As the animal, then, is derived from the vegetable matter, we accordingly find, that the former is capable of being resolved into the same principle as those of the latter. Thus, by repeated distillations, we obtain from animal substances water, oil, air, an easy destructible salt, and charcoal. These secondary principles are, by farther processes, at length resoluble into the same proximate principles which we find in vegetables, viz. air, earth, and water, and the principle of inflammability.

But though the principles of vegetable and animal substances are fundamentally the same, yet these principles are combined in a very different manner. It is exceedingly rare, that animal substances are capable of the vinous or acetous fermentation; and the putrefactive, into which they run remarkably fast, is also different in some particulars from the putrefaction of vegetables. The smell is much more offensive in the putrefaction of animal than of vegetable substances. The putrefaction of urine is, indeed, accompanied with a peculiar fetor, by no means so intolerable as that of other animal matters; this is probably owing to the pungency of the volatile alkali, and also to the urine containing less inflammatory matter than the blood and other fluids. When analysed by a destructive heat, animals afford products very different from those of vegetables; the empyreumatic oil has a particular and much more fetid odour, and the volatile salt instead of being an acid, as it is in most vegetables, is found in animals to be a volatile alkali.

Chemists have spoken of an acid procurable from animal substances, and, indeed, certain parts of animal bodies are found to yield a salt of this kind; but it by no means is the

case with animal substances in general; and though the proofs to the contrary were even conclusive, it is confessedly in so small a quantity as not to deserve any particular regard. In some animals, however, an acid exists, uncombined and ready formed in their bodies. This is particularly manifest in some insects, especially ants, from which an acid has been procured by boiling them in water.

The solid parts of animal bodies, as the muscles, teguments, tendons, cartilages, and even the bones when boiled with water, give a gelatinous matter or glue, resembling the vegetable gums, but much more adhesive. We must, however, except the horny parts and the hair, which seem to be little soluble either in water or in the liquors of the stomach. The acids, the alkalies, and quicktime, are also found to be powerful solvents of animal matter. It is from the solid parts that the greatest quantity of volatile alkali is obtained; it arises along with a very fetid empyreumatic oil, from which it is in some measure separated by repeated rectifications. This salt is partly in a fluid, and partly in a solid state, and from its having been formerly prepared in the greatest quantity from the horns of the stag, it has been called salt, or spirit, of hartshorn. Volatile alkali, however, is procurable from all animals, and from almost every part of an animal except the fat. Though we are sometimes able to procure the fixed alkali from an animal cinder, yet it is probable that this salt did not make any part of the living animal, but rather proceeded from the introduction of some saline matter, incapable of being assimilated by the functions of the living creature.

In speaking of the fluid parts of animals, we should first examine the general fluid or blood from whence the rest are secreted. The blood, which at first sight appears to be a homogeneous fluid, is composed of several parts, easily separable from each other, and which the microscope can even perceive in its uncoagulated state. On allowing it to stand at rest and to be exposed to the air, it separates into what are called the crassamentum and the serum. The crassamentum, or cruor, consists chiefly of the red globules, joined together by another substance, called the coagulable lymph; the chemical properties of these globules are not as yet understood, but they seem to contain the greatest quantity of iron found in the blood.

The serum is a yellowish subviscid liquor, having little sensible taste or smell; at a heat of 160 of Farenheit's thermometer it is converted into a jelly. This coagulation of the serum is also owing to its containing a matter of the same nature with that of the crassamentum, viz. the coagulable lymph; whatever, then, coagulates animal blood, produces that effect on this concrescible part.

Several causes, and many different substances, are capable of effecting this coagulation, such as contact of air, heat, alcohol, mineral acids, and their combinations with earths, as alum, and some of the metallic salts. The more perfect neutral salts are found to prevent the coagulation, such as common salt and nitre.

Of the fluids secreted from the blood, there are a great variety in men and other animals.

The excrementitious and redundant fluids are those which afford, in general, the greatest quantity of volatile alkali and empyreu-

matic oil. There are also some of the secreted fluids, which, on a chemical analysis, yield products in some degree peculiar to themselves. Of this kind is the urine, which is found to contain in the greatest abundance the noted salt formed from the phosphoric acid and volatile alkali. The fat, too, has been said to differ from other animal matters, in yielding, by distillation, a strong acid, but no volatile alkali. There is also much variety in the quantity and state of the combination of the saline and other matters in different secreted fluids.

Animal oils and fats, like the gross oils of vegetables, are not of themselves soluble, either in water or vinous spirit; but they may be united with water by the intervention of gum or mucilage. Most of them may be changed into soap by fixed alkaline salts, and may thus be rendered miscible with spirit as well as water.

The odorous matter of some odoriferous animal substances, as musk, civet, castor, is, as well as essential oil, soluble in spirit of wine, and volatile in the heat of boiling water.

It is said, that an actual essential oil has been obtained from castor in a very small quantity, but of an exceedingly strong diffusive smell. The blistering matter of cantharides, and those parts of sundry animal substances in which their peculiar taste resides, are dissolved by rectified spirit, and seem to have some analogy with resins and gummy resins.

The gelatinous principle of animals, like the gum of vegetables, dissolves in water, but not in spirit or in oils; like gums, also, it renders oils and fats miscible with water into a milky colour. Some insects, particularly the ant, are found to contain an acid juice, which approaches nearly to the nature of vegetable acid. There are, however, sundry animal juices which differ greatly, even in these general kinds of properties, from the corresponding ones of vegetables. Thus animal serum, which appears analogous to vegetable gummy juices, has this remarkable difference, that though it mingles uniformly with cold or warm water, yet, on considerably heating the mixture, the animal matter separates from the watery fluid, and concretes into a solid mass.

Some have been of opinion, that the heat of the animal body in certain diseases might rise to such a degree as to produce this dangerous or mortal concretion of the serous humours, but the heat requisite for this effect is greater than it appears capable of sustaining. The soft and fluid parts of animals are strongly disposed to run into putrefaction; they putrefy much sooner than vegetable matter, and, when corrupted, prove more offensive.

This process takes place, in some degree, in the bodies of living animals, as often as the juices stagnate long, or are prevented by an obstruction of the natural emunctories from throwing off their more volatile and corruptible parts. During putrefaction, a quantity of air is generated; all the humours become gradually thinner, and the fibrous parts more lax and tender: hence the tympany, which succeeds the induration of any of the viscera, or the imprudent suppression of dysenteries by astringents, and the weakness and laxity of vessels observed in the scurvy, &c. The crassamentum of human blood, as well as that of quadrupeds, changes by putrefaction into a dark livid colour, a

few drops of which tinge the serum with a tawny hue, like the ichor of sores and dysenteric fluxes, as also the white of the eye, the saliva, the serum of blood drawn from a vein, and the liquid that oozes from a blister in the scurvy, and in the advanced state of malignant fevers.

The putrid crassamentum changes a large quantity of recent urine to a flame-coloured water, so common in fevers, and in the scurvy. This mixture, after standing an nour or two, gathers a cloud resembling what is seen in the crude water of acute distempers, with some oily matter on the surface, like the scum which floats on scorbutic urine. The serum of the blood deposits in putrefaction a sediment resembling well-digested pus, and changes to a faint olive-green. A serum so far putrefied as to become green, is, perhaps, never to be seen in the vessels of living animals; but, in dead bodies, this serum is to be distinguished by the green colour which the flesh acquires in corrupting. In salted meats this is commonly ascribed to the brine, but erroneously, for that has no power of giving this colour, but only of qualifying the taste, and, in some degree, the ill effects of corrupted aliments. In foul ulcers, and other sores where the serum is left to stagnate long, the matter is likewise found of this colour, and is then always acrimonious. The putrefaction of animal substances is prevented or retarded by most saline matters, even by the fixed and volatile alkaline salts, which have generally been supposed to produce a contrary effect. Of all the salts that have been tried, sea-salt seems to resist putrefaction the least; in small quantites it even accelerates the process. The vegetable bitters, as camomile-flowers, are much stronger antiseptics, not only for preserving flesh long uncorrupted, but likewise somewhat correcting it when putrid; the mineral acids have this effect in a more remarkable degree.

Vinous spirits, aromatics, and warm substances, and the acrid plants, erroneously called alkalescent, scurvy-grass, and horse-radish, are found to resist putrefaction. Sugar and camphor are found to be powerfully antiseptic. Fixed air, or the carbonic acid, is likewise known to resist putrefaction; but, above all, the vapour of nitrous acid in the form of air is found to be the most effectual in preserving animal bodies from corruption. The list of the sceptics, or of those substances which promote putrefaction, is very short, and such a property has only been discovered in calcareous earths and magnesia, and a very few salts whose bases are of these earths. It is observable, that notwithstanding the strong tendency of animal matter to putrefaction, yet broths made from them, mixed with vegetables, instead of putrefying, turn sour.

It has been found, that when animal flesh in substance is beaten up with bread or other farinaceous vegetables, and a proper quantity of water into the consistence of a pap, this mixture, likewise, kept in a heat equal to that of the human body, grows in a little time sour, while the vegetable matters without the flesh suffer no such change. Some few vegetables, in the resolution of them by fire, discover some agreement in their matter with bodies of the animal kingdom, yielding a volatile alkaline salt in considerable quantity, with little or nothing of the acid or fixed alkali, which the generality of vegetables afford. In animal substances, also

there are some exceptions to the general analysis; from animal fats, as we observed before, instead of a volatile alkali, an acid liquor is obtained, and their empyreumatic oil wants the peculiar offensiveness of other animal oils.

ON THE DIFFERENT COLOUR OF HORSES.

This is a subject upon which horsemen entertain very different opinions; still there is an old adage, that "a good horse cannot be of a bad colour." Gibson, who certainly had considerable experience and knowledge of the horse, observes, that not only much of the beauty of the animal depends on his being well marked and of a good colour; but, also, that his good or bad properties are sometimes denoted by his being of this or that colour, or his having such and such marks. Though he, at the same time, observes, these appearances are not always to be depended upon, for daily experience shows, that however true these observations may prove in the main, yet we often meet with good horses that are very ill marked, and of bad colours; and, sometimes, very bad horses that have almost all the beauty that colour and marks can give them. He concludes, however, that it is necessary for those who have any concern among horses to be more or less acquainted with such things. The following is his arrangement of the subject.

The chief and principal colours are the bay, the chesnut, the black, the brown, the dapple-grey, and the sorrel. For the white is generally originally grey, which changes sooner or later into white, as his limbs happen to be lighter or darker; for the light-grey colts, that grow the soonest white, have generally little or no dark mixture about their joints. The bays, perhaps so called from their resembling the colour of a dried bay-leaf, are of various degrees, from the lightest bay to the dark, that approaches the nearest to the brown, but always more shining and gay. The bright bay is an exceedingly beautiful colour, because a bright horse has often a reddish dash, with a gilded aspect, his mane and tail black, and sometimes a dark list down his back. The dark bays have almost always their knees and pasterns black, and there are several sorts of bays that have their whole limbs black from the knees and hocks downwards. The bays that have no list down their backs are usually dark over the loins, which goes off gradually from dark to light towards the belly and

flanks. Some of these incline to a brown, and are more or less dappled. The bay is one of the best colours, and horses of all the different kind of bays are generally good in nature.

The true *chesnut* is generally of one colour, without any shade or gradation; his hairs are often compounded of three colours, the root light, the middle dark, and the points of a pale brown, which makes an agreeable mixture, and differ from the sorrel in this, that the mixture of the chesnut is not so distinct and apparent to the eye, especially at any distance, because the hairs of the sorrel are often of several colours intermixed, wherein the red or fox-colour generally predominates. Many chesnut horses have their manes and tails very nearly the colour of their bodies; many of them have no white about their legs, and frequently no mark; whereas the sorrel have generally a good deal of white about their legs and pasterns; many of the sorrels have a large blaze, and not a few are bald all over the face, while their manes and tails are sandy or flaxen colour. Both the chesnut and sorrel are of degrees darker or lighter, and there are some chesnut horses with manes and tails as light as the sorrel, and the hair all over the body approaching to a fallow colour, only with a sort of beautiful chesnut stain.

There are many good and beautiful horses both of the chesnut and the sorrel; but the latter, when they have much white about their limbs, are apt to be more faulty in their feet than those that are more uniform in colour, and they are also apt to be more tender in constitution. When a chesnut horse happens to be bald, or partly coloured, or to have white legs; such horses are not very agreeable to the eye, for chesnuts are the least tainted in their colour of any other, and most people prefer the chesnut to the sorrel, both in point of beauty and goodness.

The brown is a colour not altogether so beautiful as the bay or chesnut. Horses have also their degrees, some being light and some very dark. They have almost all black manes and tails, and often their joints are black, though not so shining as the bays, but somewhat rusty. Almost all brown horses grow gradually lighter towards their bellies and flanks, and many are light or mealy about their muzzles. The most beautiful are those that happen to be finely dappled, for the plain brown are esteemed more ordinary; many of them are coarse, but strong and serviceable, fit for draught or for burdens.

Black horses are very beautiful, especially when they are of a jet shining black and well marked, and have not too much white; for as a great deal of white, especially when it spreads round the eyes, and a great way up their legs adds nothing to their beauty, so neither does it add any thing to their goodness. The English horses have more white than the black horses of any other country. Gibson says, he knew many fine Spanish horses, and one Egyptian, all without white. The Dutch and Spanish horses seldom have much; though he thinks, a star or a blaze, and sometimes a white muzzle, and one or more of the feet tipped with white, beautiful, and no diminution to the goodness of a horse. On the contrary, some think those an addition, from an opinion, that horses without mark are generally stubborn and

ill-conditioned. Some black horses have brown muzzles, are brownish also on their flanks, and between their hips; these are often called brown black, as they are not a perfect black, but approach near to the colour of a tawny black hound; some are of a lighter colour about their muzzles, and are called mealy-mouthed; others are called pidgeon-eyed horses, which have a white circle round their eyelids, and sometimes a patch of white on the fundament and the sheath. On the whole, he considered the English black horses, especially of the cart kind, not so hardy as the bays or chesnuts. Those that partake most of the brown are generally the strongest in constitution.

The greys are so diversified in colour, and so common, and so well known, that much need not be said about them; the dapple greys are reckoned the best, and are to be found in most parts of the world. The silver grey is extremely beautiful, and many of them are very good; the iron grey, with light mane and tail, have also a gay appearance, but are not accounted the most hardy. The light plain grey, and the pidgeon-coloured grey soon change and turn white, as all other greys do in process of time; the dapple grey keeps his first colour the longest, which is a sign of strength in constitution. Some of them reach an advanced age before they change, and never so perfectly as not to retain some vestiges of their native colour. The nutmeg grey, where the dapple and other mixture participate of the bay or chesnut, is not only exceedingly beautiful, but most of the nutmeg greys turn out very hardy and good.

The roans are a mixture of various colours, wherein the white predominates; many of them are much better and stronger horses than they appear to be; some, indeed, are remarkably good, and those that have a mixture of the bay or nutmeg colour are sometimes tolerably handsome. The roans have a general resemblance to each other, and yet a very great diversity; some are strewed all over with white, as if they were powdered or dusted with flour, and some as if milk had been spilt all over their buttocks; others, as if they were powdered with soot or lamp black, and some as if their faces had been dipped in soot; many of these are good horses and hardy.

The strawberry approaches pretty near the roan in some respects, but mostly resembles the sorrel, being often marked with white on his face and legs, which we seldom observe perfect without mixture on the roan. The bay mixture in the strawberry is also of the highest colour, and makes him look as if he was tinctured with claret; some of this sort are both handsome and good, but are not very common.

The fallow colour, the dun, and the cream colour, have all one common resemblance, and most of them have a list down their backs, with their manes and tails black. The mouse, dun, and lead colour are the most ordinary; and, because the list down their backs goes off with a soft imperceptible shade, like what is observed on the back of an eel, are, on that account, called eel-backed. Dun horses are seldom chosen, though horses of this colour often prove useful in the hands of country people. The fallow and cream-coloured horses are many of them both good and beautiful; those are

generally the best that have their manes and tails, as well as their joints and muzzles, black or chesnut, and their general colour inclined a little to chesnut. The king's cream-coloured horses are bred in Hanover, and appear to be a distinct breed from all others; their manes and tails are inclined to the chesnut colour, and the pupil of the eye is red, like the ferrets, with a white iris. The fallow, or tawny dun, are often shaded with a darker colour, and sometimes faintly dappled, and look very well in a set when they happen to be well matched. There are many other colours of horses produced out of the great diversity that are to be met with every where, as the peach colour, starling, and flea-bitten, and all these partake, more or less, of some of the colours already mentioned. Some of the foreign horses, particularly those bred in Germany, are very finely spotted; some like tygers, some like deer, with black, red, and yellow, or other gay colours, and when these happen to be handsome in their shape and appearance, they are generally reserved as presents for princes, or other great men, though, perhaps, more for their singularity than any superior excellence in them. Others, again, are so disagreeably diversified in their colours, that they are thereby considered as much deteriorated in value from that circumstance. After all, the colour has but little influence on the natural properties of the animal, for, as has been before observed, "a good horse cannot be of a bad colour;" it is, however, a general observation amongst horsemen, that the light bays, and the sorrels, with flaxen mane and tails, as well as most others whose colour is faint and of an uncertain cast, are usually weaker and more delicate in their constitutions than others. It is also supposed, that white legs and white hoofs are weaker than black or chesnut; but it is probable, that this is mere matter of opinion. It has been said, that the true Arabian horse is never black; whether this is well founded or not, it is not easy to determine; it is certain, however, that there are few well-bred horses that are black.

ON HORSEMANSHIP.

In treating on this subject, it will be necessary, first, to describe the different paces of the horse, that constitute the basis of the art of riding.

The horse, like all other quadrupeds, is formed with four legs, for the purpose of moving from one place to another. In the exercise of this faculty, however, he moves

his limbs very differently according to different circumstances. It is this difference which constitutes the several distinct paces, such as the walk, the trot, the canter, and the gallop. There are some other paces, such as the amble, the run, or running-trot, and the airs of the manage or riding-house, all of which may be considered as artificial, and not natural to the animal.

THE WALK.

This is the most gentle of all the paces, and would appear, at a first view, to be the most easy; nevertheless, it is a remarkable fact, that not one horse in five hundred can walk well, or even walk at all. This may be attributed to various causes, but the principal one undoubtedly arises from the bad conformation of the animal. The first point essential to the performance of a good walk, is, that the animal should naturally be so placed on his legs, when standing still, as to preserve a proper equilibrium in all parts of the body. The head and neck, projecting beyond the shoulder and fore-legs, consequently occasion a greater weight mechanically, than if they were placed immediately above them; and this weight will be either increased or diminished, according to the forward or backward position of the fore-legs. In the first place, therefore, if the shoulders be upright, the fore-legs generally stand far under the body; hence the point of support is farther removed from the head and neck, and which must consequently increase the weight of those parts.

When the rider is mounted, and sitting on the centre of the horse's back, the fore-legs, if well placed, and in a perpendicular direction, will stand between his body and the horse's head and neck, whereby these two weights will form a sort of counterpoise to each other; but when, (as has been just observed,) the shoulders are upright, and the fore-legs incline inwards under the body, then the central point of support is lost, and the head and neck become heavier in consequence of that circumstance. If, therefore, the fore-legs do not stand perpendicular, and well advanced before the shoulders, it is almost impossible that the animal should move them lightly and with sufficient freedom. The faculty of walking well is not, however, confined to the position of the fore-legs alone, as it is necessary that the shape of the hind-quarters and the position of the hind-legs should also accord with that of the fore-legs, to produce a proper harmony in their action. Much, also, will depend on the back, and the muscular power of the haunches and thighs. A long-backed horse is generally easier to the rider than one of an opposite description, but he cannot be so strong, nor so collected in the motion of his limbs as a short-backed horse; and it may generally be observed, that a long-backed horse has a rocking vermicular motion of his body during progression. With all horses that walk firm, fast, and well, the hind-foot oversteps the mark of the fore-foot by some inches; and this arises from the animal being able to use his hind-quarters with freedom, and to advance his hind-legs well under his body, by which the fore-legs are greatly relieved; as the hind-legs, in that case, take more of the weight of the body than they would do when dragged after the animal: the hind-legs, therefore, should stand perpendicular, under the round bone, which is the connecting joint of the thigh and leg

with the body. In that case, their flexion and extension will be even and uniform, and the animal will move with much less labour than he would under other circumstances. In the action of the walk, the horse moves his legs separately; that is to say, one after the other. Thus, if he begins with the right, he first raises the right, or off hind-leg, and advances it under his body; but, before the foot reaches the ground, the right, or near fore-foot, is raised and advanced, in order to make room for the hind-foot, which, in middling and slow walkers, alights upon the mark of the fore-foot; but, in good and fast walkers, oversteps it considerably, as has been just observed. As soon as the near fore-foot alights upon the ground, the off, or left hind-foot, is raised; the left, or near fore-foot then rises to make room for the near hind-foot, in the same way as on the other side.

The walk, therefore, consists of a separate and successive action of all the four legs; beginning with a hind-leg; and in proof of this, the same remark will be found in an old author, "*Borelli de motu animalium;*" who, speaking of the walk, says, "*incipit gressus pede postico;*" he begins the walk with a hind-leg, and this, though it appears unaccountable at a first view, is, nevertheless, the fact; because, if the hind-leg were not first advanced, before the fore-leg began its action, there would be no support for the body whilst the fore-leg was suspended in the air; nor could the body be moved forward until the hind-leg had quitted its station, in order to take a new point of support or centre of gravity.

During the walk, the fore-leg, which is raised in the air, should be for a moment stationary before it reaches the ground. This shews that the body is properly poised, and steadily supported by the other fore-leg, in which case, the horse has a greater command of the leg which is in the air, and which he can throw forward to either a greater or less distance, as the nature and surface of the road may require. It is, also, a great proof of soundness in the feet; for a tender-footed, or what is called a *groggy* horse, cannot stand long upon one leg without pain, and hence arises that short, stiff, and contracted motion which invariably takes place with horses of that description.

Foreign horses, especially the Spanish, have this habit of suspending the fore-leg in the air much longer than English horses; but it is generally accompanied with a throwing of the foot outwards, which, though it adds to the parade and pomp of the action, still diminishes the speed; because the leg is not advanced by this flourish, but is, on the contrary, brought down again nearly in the same place from whence it was raised.

The necessity of a good mode of walking is particularly felt in hilly countries, especially in descending a hill, for there the motion of a loose-made and weak horse is very unpleasant to the rider, who feels himself in the constant danger of his horse falling. Long-backed, and weak-loined horses, whose fore-legs are also badly placed under the body, go down hill with great difficulty and uncertainty. They are seldom able to preserve a straight line of direction, and in order to take as much of the weight as they can off the fore-legs, they move sideways, something in the same manner as a crab.

On the contrary, a strong-loined and short-backed horse, by bringing his hind-legs farther under him, is able to relieve the fore-

iegs, and, consequently, to step with greater ease and firmness.

The Irish horses, which are generally high in their fore-quarters, short in their backs, and low crouped, with their hind-legs standing much under their bodies, are almost invariably good walkers; and, indeed, are in general most excellent hackneys. The faculty of walking well, however, notwithstanding the advantages of the best shape and make, must depend a good deal on the rider, for the natural vivacity and impatience of young horsemen are but ill adapted to teach a horse a pace of so much uniformity and steadiness. Hence it may generally be observed, that old men, who cannot bear the fatigue of riding fast, are the best teachers of that pace, and consequently possess the fastest walkers, a matter of no small comfort in hot weather.

The walk, on the average, reaches five miles an hour, though there have been instances of horses walking even six. But beyond the rate of five miles, it generally becomes a shuffling pace, between a walk and a trot, in which the animal walks with his fore-legs, and in some degree trots with his hind-legs.

THE AMBLE.

Although peculiar to some horses in a state of nature, may, nevertheless, be considered as an artificial pace; since, in some countries, they take great pains to teach it. The amble differs from the walk in this respect, inasmuch as the animal moves two legs on the same side at once; whereas, in the walk, he moves them all separately and in succession; it is a pace more common with quadrupeds of the cat kind; as the lion, tyger, &c; dogs also amble, when they move slowly. It seems, therefore, to belong most to animals with long and flexible spines; and is, therefore, an easier pace to them than the walk. It may, therefore, be presumed, that, in a horse, it is a sign of weakness when he takes to it of his own accord. It is, certainly, a more unsafe pace than the walk; because, when both legs on the same side are off the ground at once, the horse is obliged to support himself on a single line with the other two; on which account, he has not so broad a basis as when he is supported by a fore-leg and a hind-leg on opposite sides; in which case, both sides of the body are equally supported; whilst, in the amble, the support is confined to one.

A horse that walks lightly and freely, moves his head up and down in conformity with the action of his fore-legs. This motion of the head accompanies the motion of the leg; thus, when the leg is off the ground, the head sinks, and rises again when the leg reaches the ground, and so on alternately whilst he is in motion. This nodding of the head has its use, inasmuch as it relieves the muscles of the neck, and takes off that uneasiness which arises from a long continuance of one position, as is so evidently the case with coach-horses that are reined up tight with a gag-rein, and which are constantly throwing their heads up to get relief from such an unnatural confinement.

A horse cannot move his shoulders with freedom, and advance his fore-legs well, if his head is too much confined by the hand of the rider; a tight rein, therefore, should always be avoided. It is a fact worthy of observation, that a horse that walks well generally excels in every other pace; never-

theless, there are sometimes exceptions, as some bad walkers are very speedy in other paces, but this is owing chiefly to the bad management of the rider.

THE TROT

Differs from the walk, in which pace, the legs are moved separately and successively; whereas, in the trot, two legs are moved at the same time; namely, a fore-leg and a hind-leg on opposite sides; thus, when the near, or left fore-leg, is elevated, the off, or right hind-leg, is raised at the same time, and they both alight on the ground at the same moment. On this account, the horse passes over as much space at two motions in the trot as he does at four in the walk. In order to this pace being well performed, it is indispensably necessary that the animal should be well grown in his fore-quarters; that is to say, that he should rise well before the saddle, with his shoulder-blades inclining backwards, and his fore-legs standing strait under the shoulder and well-advanced. His chest should be neither too narrow nor too broad; if it be too narrow, the elbows generally incline too much inwards, in which case, the horse will be likely to cross his legs and to cut under the knee of the opposite leg, which fault is called amongst horsemen, the *speedy cut,* and is a very dangerous defect, as it very frequently causes a horse to drop suddenly as if he was shot. On the other hand, if the chest be too broad, the horse will be apt to go with a rolling motion from side to side, not only very unpleasantly to the rider, but also lessening his speed in a considerable degree.

In the trot, there is a certain degree of flexion in the knee necessary to safe and quick action, and with a good trotter, that moves his shoulders freely and throws forward his fore-leg, the knee may be seen by the rider advanced beyond the point of the shoulder every time the leg is in the air

When the knee is bent too much, and raised too high, there must be a great deal of unnecessary action; and, consequently, a loss of time. On the other hand, when the leg is thrown out too straight, with the toe pointed, the leg remains stationary for a short period, gaining no more ground than what is acquired by the momentum of the body. The best action, therefore, is when the leg is moderately raised, and the shoulder thrown forward; but the principal source of speed in trotting, as well as in all other paces, is in the hind-quarters. The action of some horses in this respect is extremely beautiful; that is to say, when there is an equal flexion in the hock and stifle-joints. Hence they appear to go, as it were, upon springs, but when this bounding motion is carried to an extreme, it constitutes what is called the darting trot, and is never so speedy as the quick repetition of action in the different legs in the less extended trot. Twelve miles in the hour is considered fast trotting, but there are many horses capable of trotting sixteen, and even eighteen, miles within the hour. In these cases, however, of extreme speed, the motion ought not to be considered as a trot, for it becomes decidedly a run, as may be perceived by the legs moving separately and successively one after the other; whereas, in the trot, two are moved at once; namely, a fore and a hind-leg on opposite sides. Horses that are badly formed in their fore-quarters, when pressed in the trot, are apt to strike the shoe of the

fore-foot with the toe of the hind-foot, making a disagreeable clacking noise, which is called *forging*, and rendering the pace unsafe by the risk of the hind-foot getting locked with the heel of the shoe of the fore-foot; in which case, except the shoe be torn off, the horse must inevitably fall, and with great violence.

This defect arises from the horse's being unable to advance his fore-leg with sufficient celerity, so as to get it out of the way of the hind-leg when it is brought under the body, and though it may be prevented, in some degree, by good riding, yet it is never thoroughly got rid of, and will always recur when the animal is tired by hard labour.

In some instances, where a horse is pressed in the trot, he gets into a shuffling pace, between a trot and a gallop; that is, he either gallops with his fore-legs, and trots with his hind-legs, or else *vice versa*; in either case it is a very unpleasant action, and greatly retards the speed.

Trotting upon hard roads soon wears out the fore-legs and feet, and there are few fast trotters, at seven or eight years old, that do not shew strong marks of being the worse for wear. In this pace, the body is propelled forwards in a straight direction, without that alternate rising and sinking of the fore and hind-quarters which takes place in the canter and in the gallop. Hence, the whole weight and shock of the body is received by one fore-leg at a time only; whereas, in the canter and gallop, the hind-legs first sustain the weight, and thereby reduce the shock which would otherwise fall on the fore-legs entirely. The concussion, arising from fast trotting, upon hard roads, particularly in frosty weather, is sometimes so great as to occasion violent inflammation, producing what is called *founder*, or a sinking of the coffin-bones; and even, in some cases, to occasion a separation of the hoof altogether.

English horses are more subject to this inconvenience than foreign horses, because they go more upon their shoulders, and with their haunches more behind them, thus throwing all the weight forwards. Foreign horses, on the contrary, bring their hind-legs more under their bodies, and bend their knees more; and, instead of throwing out their fore-feet before them, they bring them down nearly in the same place from whence they raised them. This kind of action, of course, is not so speedy as that of the English horse, but it is much less injurious to the legs and feet, and, at the same time, is more easy and pleasant to the rider.

Foreign horses are generally longer in the pastern-joints; and this conformation also lessens concussion, by increasing the elasticity.

Horses that are very short in their backs, generally trot wide with their hind-legs, especially those that are what is termed *cat-hammed*; that is to say, with their hocks standing close together, and their feet at some distance from each other; by this manner of moving their hind-legs, they avoid striking or over-reaching their fore-feet, as their hind-feet alight on the ground on the outside of the fore-feet. There is also another method of going, by which short-backed horses escape over-reaching, and that is, by trotting a little sideways, like a dog; by which means, one hind-foot comes *between* the two fore-feet, and the other hind-foot on

the *outside*. This method of going, however, is unpleasant to the rider; because, if he sits in a straight direction, he cannot so well adapt the motion of his own body to that of the horse, which is constantly carried in an oblique position, and he is therefore obliged to sit with one shoulder more advanced than the other, although he is going in a straight line of direction.

It is a common opinion, that blood-horses never make fast trotters. This, perhaps, may arise, in some measure, from their being so seldom selected for that purpose. But as all fast trotting, beyond a certain rate, becomes a run, it is evident, that the length and pliancy of the legs of the blood-horse, together with that elongated or darting action which they all shew in the trot, is not adapted for that short and quick step by which the common hack is distinguished.

THE CANTER

Is not generally a natural pace. When the horse is excited to move from one place to another, when in a state of liberty, he performs it with a velocity proportionate to the exciting cause. Thus he changes from the walk to the trot, and from the trot to the gallop, according to his inclination.

In each of these changes he acquires an addition of speed; but as the trot is equal in speed to the canter, he seldom adopts the canter, but changes to the gallop when he wishes to accelerate his motion. The horse is taught to perform the canter by shortening the gallop. To accomplish this, he should be well formed in his hind-quarters, and stand with his haunches well under him, as it is impossible to make a horse canter whose hind-legs stand far behind him, and whose fore-legs incline greatly under the body.

The concussion is not so great in the canter as in the trot, because the action is divided into three motions. Thus, if the horse leads with the off fore-leg, the feet will come to the ground in the following order of succession; namely, first, the near hind-leg; next, the off hind-leg, and the near fore-leg together; and, lastly, the off fore-leg; but, during this alternation, there is a period when three feet are on the ground at once; for instance, two hind-feet and the near fore-foot will be on the ground just prior to the moment when the off fore-foot alights, which having taken place, the near hind-foot rises from the ground, leaving the other three; viz. two fore-feet and the off hind-foot stationary.

In the canter, the horse moves somewhat obliquely, by advancing one shoulder more than the other, in conformity with the leading leg. Thus, if he leads with the right fore-leg, the right hind-leg must follow, and be advanced more under the body than the left hind-leg. By this position, the feet describe a rhomboidal quadrangle, which gives a greater stability to the body during progression, than if the animal moved with an equilateral projection of his limbs.

If the horse leads with his right fore-leg, and follows with the left hind-leg, he is said to canter false. This may be easily felt by the rider, as the body of the animal will move in a tortuous unharmonious manner. Whenever this takes place, he should be stopped immediately, as he incurs the danger of falling.

It is easiest for the rider when the horse leads with the off or right fore-leg, because

the rider, holding the reins in the left hand, generally turns his body somewhat to the same side, which inclination accords also with the oblique direction of the horse's body. To oblige the horse to lead with the off fore-leg, it will be necessary to shorten the near or left hand rein, and to press the horse's side with the left leg, and to apply the spur if necessary.

By shortening the left hand rein, his head and neck will be inclined to the left or near side, which will confine the motion of his near or left shoulder, and force him to advance the off-shoulder; at the same time, the pressure of the rider's left leg throws off the croupe to the right side, and gives the hind-quarters the same direction as the fore-quarters. If the horse is required to lead with the left or near fore-leg, the right hand and heel must be employed for that purpose.

The canter is a pace peculiarly accommodating to the sensations of the rider, as his seat is preserved with little or no exertion; whilst, at the same time, the progress he makes is very considerable.

THE GALLOP

Is commonly divided into two paces, the moderate or hand gallop, and the full gallop. The motion of the legs, however, in regard to the order of their succession in alighting upon the ground, is exactly the same in both paces, the only difference being in the quickness of repetition.

In the canter, the action is divided into three beats; namely, (if the horse leads with the right or off fore-leg) the first is the near or left hind-leg; next, the off hind-leg and near fore-leg at the same time; and, finally, the off or right fore-leg. But in the gallop, the legs all move separately, as in the walk, the near hind-leg first alighting on the ground; then, the off hind-leg; next, the near fore-leg; and, lastly, the off fore-leg. Thus, the foot-marks of all the four legs follow each other, nearly in a straight line, and at equal distances. By this means, the shock is broken, as the weight and concussion is equally divided between every leg, by their coming to the ground in regular succession after each other; and the contrary effect would have taken place had the legs moved two and two, and parallel to each other.

On this account, the common way amongst artists of representing the horse on the gallop, with his fore-legs and hind-legs extended at the same time, is quite erroneous; because the hind-legs are always advanced under the body to receive the weight, at the time that the fore-legs are extended. Dogs, and other quadrupeds, with flexible spines or back-bones, gallop with their fore and hind-legs extended at the same time; but they have no weight to carry, which is not the case with the horse. Thus, there is a period of time, when the legs of dogs, hares, &c. are all gathered together under the centre of the body during their gallop, the hind-legs crossing the fore-legs; and, in order to effect this, they go wider with their hind-legs, or else in an oblique direction, so as to enable their hind-legs to clear the fore-legs at each repetition of motion.

During this action of gathering up all the legs together under the body, for the purpose of taking a fresh point of projection, the back-bone necessarily becomes arched, so as to admit of the fore and hind-quarters

being brought nearer together, but as soon as the legs are thrown out again, the back again recovers its straight position. This arching of the back would have been a very inconvenient action for the horse; and, indeed, it would have been almost impossible in that case for a rider to have kept his seat; besides that, it would have had the effect of throwing more weight on the fore-quarters, and thereby impeding the free use of the fore-legs.

During the gallop, the horse leads with one fore-leg projected beyond the other; and riders, in general, (though there is no very obvious reason for it) prefer the off or right fore-leg to the near or left; but this is all the effect of habit; for, as the body of the horse is obliged to move rather obliquely, and not in a straight line, the rider, (for his own ease), is also obliged to sit in the same direction. Hence, after being accustomed to ride a horse that leads always with the same leg, he finds it inconvenient and unpleasant to ride one that leads with the opposite leg; but this, as has been just observed, is entirely the effect of habit.

Every horse, however, should be taught to lead with either leg occasionally, because the leg with which he does *not* lead, does more work than the other, by coming to the ground first, and thereby receiving first the shock of the body. Moreover, if the horse is never suffered to change his legs, he acquires a stiff contracted motion on the one side comparatively with that of the other; and, therefore, when obliged to change, he goes not only very uneasily to himself, but also to his rider.

During the gallop, it is necessary that there should be an uniformity of action in all the four legs. Thus, if the horse leads with the off or right fore-leg, the right hind-leg should follow; but if the animal leads with the off or right fore-leg, and the left or near hind-leg follows, he is then said to gallop false, and should be stopped immediately, for fear of his legs interfering, and thereby rendering him liable to fall.

Different horses gallop in very different forms; some gallop very high with their fore-quarters, throwing up their knees as high as their chests, and even higher. This action is peculiar to most foreign horses, particularly the Spanish; and, although it adds to the pomp and parade of a war-horse, or a maneged horse, yet it reduces the speed in a very great degree, as well as adds to the labour and fatigue which the animal has to undergo.

The English thorough-bred horse, on the contrary, gallops low, and with his fore-legs nearly in a straight line of elevation; nor are his head and neck much raised beyond the line of his body. This style of galloping is much better adapted for speed, and is almost universal amongst race-horses, but it requires great muscular power and command of the limbs, to enable the body to preserve this steady and straight line during its progression; for the hind-quarters must be doubled up, as it were, to enable them to clear the ground at the moment when they are thrown forwards under the body. Hence the necessity of the thighs and hocks being well-formed; that is to say, that the thigh should be broad and muscular, and the hock broad also, so as to increase the fulcrum, or mechanical purchase in the hock-joint, from whence the

spring is principally taken. It must also be evident, that a good conformation is necessary in the fore-quarters, to preserve a proper harmony of action in all the limbs, although instances sometimes occur of horses that are badly formed in their fore-quarters being possessed of great speed. But this casual variation from an established rule, may be attributed principally to the animal's being endowed with some peculiar properties in the conformation of his hind-quarters, and furnishes no reason for neglecting to look to the fore-quarters in the choice of a horse for either the road or field.

If the shoulders stand very upright, and the fore-legs incline far under the body, it is clear, that the horse cannot throw them out before him with that ease and celerity which is essential to good action; and any deficiency in that respect must prevent them from getting out of the way of the hind-legs in time to allow the latter the liberty of extending as far as possible under the body, previously to taking a fresh spring. In addition, also, to this inconvenience, the fore-quarters, by being oppressed, incline the horse to bear heavily on the hand of the rider; whereby, the danger is increased of the animal's over-reaching against his fore-legs, and falling with great violence.

The chief source of speed, however, as has been before observed, rests in the hind-quarters; hence, most fast gallopers have good loins and strong muscular thighs, and these are points which are indispensably necessary to enable the animal to gather his legs quickly, and to throw them well under his body; for superior speed depends more on a quick repetition of the motion of the legs than on the length of stride, as is sufficiently proved by the fact of small horses being in general more speedy than large ones.

The comparison, indeed, may be carried to a still greater extent, as, for instance, in the case of a hare, which, though so much smaller than the horse, is not much inferior in speed; at least, not in a regular ratio with the difference of size between the two animals. The hare, also, furnishes a strong illustration of the power of the hind-quarters in propelling the body forwards, its hind-legs being considerably longer than the fore-legs. Thus, when the hare is galloping in a slow pace, its rump is much higher than its shoulders; but as soon as it increases its speed, the back straightens, the hind-quarters come nearer to the ground, and the extreme length of the hind-legs is accommodated by the bending of the joints at the stifle and hock, every time they are brought under the body, for the purpose of recovering a fresh point of resistance.

The loins and the thighs of the hare are remarkably strong and muscular, and the hock-joint broad, with the tendon considerably detached from the centre of the joint; whereby the lever is increased. The same form is evident in the greyhound; and, indeed, except in regard to the length of tail, the shape of the hind-quarters in both is exactly similar.

All these instances sufficiently demonstrate, that the principal source of speed is in the hind-quarters; therefore, in chusing a horse, either for the turf or the chace, the hind-quarters should be first considered; for, if the animal be defective in the conformation of those parts, it is almost impossible that he should possess any great degree of speed.

Some horses, in galloping, change the leading leg whilst they are going on. When they change the fore-leg without the hind-leg, they then gallop false; but when they change both a fore and a hind-leg at the same time, it is a proof of strength, and of great command of their limbs. When the horse gallops in a circle, he is obliged to lead with the inner leg; thus, if he gallops to the right, he must lead with the right fore-leg; if to the left, he must lead with the left. This is absolutely necessary to prevent him from falling; because, in going in a circle, the body of the horse inclines inwards, in a greater or less degree, according to the size of the circle. This leaning of the body towards the centre of the circle is so great when the circle is of a small diameter, that he would fall on his side if he were standing still in that position, or if he were going in a straight line.

There is another peculiarity attending the working in the circle; which is, that the outer legs move to a greater extent than the inner legs, which arises from their going on a larger circle than the inner ones, but the inner ones bear almost the whole weight of the body; hence, it is a kind of work which is more fatiguing than going on a straight line; and ought, therefore, not to be persisted in too long at a time. Whilst going in the circle, the horse leans inwards to such a degree that he would fall on his side if he were going on a straight line, but the moment he stops he recovers his natural upright position. The degree of inclination of his body depends on the size of the circle on which he is moving; the smaller, therefore, the circle, the greater the degree of inclination of the body.

This moving in the circle is attended with some danger in situations where the horse has not sufficient foot-hold, owing to the hardness of the surface of the ground; hence, very serious accidents sometimes happen in turning the corner of a street at a quick pace, by the horse's heels flying up from under him, thereby causing him to fall with great violence on his side.

Young horses should not be worked too much in the circle, because it tries the pastern joints exceedingly, by throwing the weight upon one side of the foot only; the consequence of which partial exertion is, frequently, a ring-bone, or else, ossified cartilages.

The Earl of Pembroke, in his excellent little treatise on military equitation, makes the following observations on the proper mode of *longeing* horses in the circle. He says, "though all horses for the service are generally bought at an age when they have already been backed, I would have them begun and prepared for the rider with the same care, gentleness, and caution, as if they had never been handled or backed, in order to prevent accidents, which might otherwise arise from skittishness or other causes; and as it is proper that they should be taught the figure of the ground they are to go upon when they are first mounted, they should be previously trotted in a *longe*, on large circles, without any one upon them, and without a saddle, or any thing else at first, which might hurt, constrain, tickle, or make them any ways uneasy. The manner of doing this is as follows; put an easy cavesson upon the horse's nose, and make him go forwards round you, standing quiet yourself, and holding the *longe*, and let another

man, if you find it necessary, follow him with a whip. All this must be done very gently, and but a little at a time; for more horses are spoilt by over much work, than by any other treatment whatever, and that by very contrary effects; for sometimes it drives them into vice, madness, and despair, and it often stupifies them, and totally dispirits them. An excellent way of *longeing* horses, that are apt to carry their heads low, (which many do) is to *longe* them with a cord buckled to the top of the head-stall, and passing from thence through the eye of the snaffle into the hand of the person that holds the *longe*. The first obedience required in a horse is going forwards; till he performs this duty freely, never think of making him rein back, which would inevitably render him restive; as soon as he goes forwards readily, stop and caress him. You must remember in this, and likewise in every other exercise, to use him to go equally well to the right and left; and when he obeys, caress and dismiss him immediately. A horse, though ever so perfect to one hand only, is but a half-dressed horse. If a horse that is very young takes fright, and stands still, lead on another horse before him, which will probably induce him instantly to follow. Put a snaffle in his mouth, which snaffle should be full and thick in the mouth-piece, and not too short, and when he goes freely, saddle him, girting him at first very loose. Let the cord which you hold be long and loose, but not so much as to endanger the horse's entangling his legs in it. It must be observed, that small circles, in the beginning, would constrain the horse too much, and put him on defending himself. No bend must be required at first. Never suffer him to gallop false; but whenever he attempts it, stop him without delay, and then set him off afresh. If he gallops of his own accord, and true, permit him to continue it; but if he does it not voluntarily, do not demand it of him at first. Should he fly and jump, shake the cord gently upon his nose without jerking it, and he will fall into his trot again. If he stands still, plunges, or rears, let the man who holds the whip make a noise with it; but never touch him till it be absolutely necessary to make him go on.

"When you change hands, stop and caress him, and entice him by fair means to come up to you; for by presenting yourself, as some do, on a sudden before horses, and frightening them to the other side, you run a great risk of giving them a shyness. If he keeps his head too low, heighten your hand, and shake the cavesson to make him raise it; and, in whatever the horse does, whether he walks, trots, or gallops, let it be a constant rule that the motion be determined, and really such as is intended, without the least shuffling, pacing, or any other irregular gait. A false gait should never be suffered. The trot is the pace which enables all quadrupeds to balance and support themselves with firmness and ease. When he goes lightly and freely, tie his head a little inwards by degrees more and more so, as he grows supple, both in trotting and galloping in the *longe*, without any one upon him. Great care must be taken that he always goes true, and that his head is not kept tied for any time together; for if it was, he would infallibly get a trick of leaning on the rein, and throwing himself heavily on his shoulders when he grew tired. Every regiment should have some covered place for their riding

during winter, or nothing hardly can be done in the bad season. In good weather, it is full as well, and more pleasant, to work out of doors; and, indeed, doing so frequently prevents local routines, which horses are sometimes apt to take, particularly in schools, if great care is not taken. On the other hand, they are more often *distraied,* and apt to loose their attention by various objects in fields, than they are in a riding-house. It is, therefore, difficult to decide either for the one or the other; there is more liberty in the one than in the other, and horses worked out of doors grow used to objects which they would otherwise fear. In shut schools work may be more exactly done, perhaps, and the ground there is best: both are good at proper seasons, and either will do very well if the riding master is good."

In regard to the proper bridle, he makes the following observations; viz. "A very good and careful hand may venture on a bit at first, and succeed with it full as well as by beginning with a snaffle alone; but such a proceeding will require more care, more delicacy, and more time than can be expected in a corps, whose numbers are so considerable, and where there are so few if any good riders. A raw man is much easier taught to ride well than one who has learnt ever so long on bad principles, for it is much more difficult to undo than to do, and the same in respect to the horse.

On colts, it is better in all schools whatsoever, to avoid any pressure on the bars of the mouth just at first, which a curb, though ever so delicately used, must, in some degree, occasion.

Whoever begins a horse with a bridle, must be, in every respect, a very good delicate rider, and be very careful that the horse does not keep and get his head low, whereby all action in the shoulders is spoiled. I have seen some schools, in France particularly, where a bit was immediately put into a horse's mouth at first; but I have constantly observed in those schools, that their horses carried their heads low, that the motion of their shoulders was not free, but confined. Here and there, one horse or so, indeed, there might be, whose fore-hand nature had placed so high that nothing could bring it down low. Great care must be taken to make the men use their snaffles delicately; otherwise, as a snaffle has not the power which a bridle has on a horse's mouth, they will use themselves to take such liberties with it as will quite spoil their hands, and teach their horses to pull, to be dead in hand, and quite upon their shoulders, entirely deprived of good action. Whenever any bridles are used, (and they always should be at a proper time, when the horse's heads are high, and they are well determined, light in hand, and free in their motions,) they must be all the same; for though different mouths require different sorts of bits, it is absolutely necessary that some general uniform sort should be used throughout a regiment; they should differ only in breadth, according to the breadth of each horse's mouth. The weight of the bit, without the curb, is about fourteen ounces three quarters; the curb alone weighs about four ounces and a quarter, and the little chain, to prevent horses from taking the branches in their mouths (which is a trick that many horses get,) three quarters of an ounce. The whole together weighs one pound three ounces and three quarters. The rings to

the branches should be fixed, and the reins buckled to them to prevent the latter from twisting. The mouth-piece should be of a proper shape, heighth, and substance, and is fixed; all such as are not so, and move in the joint, have a bad, uncertain effect. Thin curbs are bad, and are apt, if roughly used, (a thing very difficult to prevent at all times in some people's hands) to cut and damage the horse's mouth very much. They should be flat, broad, and easy, that they may not hurt the horse's *barbe,* but they should not be thick and heavy. This bridle is calculated for light horses; heavier horses may have the branches a quarter of an inch longer, and the whole bridle somewhat, but very little more substantial.

Bridles should never be used with raw horses at first; a plain mouthed, smooth snaffle does better; the twisted, sharp, cutting ones, are barbarous instruments, that have no other effect than rendering the mouth hard and callous. The single bridle, as well as the double-reined ones, are, nevertheless, useful and agreeable with horses that are well broke and dressed, and especially if they are apt to get their heads low.

The next process to be commenced is what is called *working in hand.* This requires a certain degree of activity, a quick eye, and like every thing else about horses, good temper and judgment. Though it is in reality no difficult thing, few people succeed in it; it should be begun by trotting with the horse's head bent inwards, by a strap, tied from the side ring on the cavesson to the ring on the pad. A strap and buckle to the head-stall under the throat, is very useful, to prevent the side part of it from chafing against the eye, which it is very apt to do when the bending strap is used, and drawn at all tight. This should be done for a little while only at a time.

If the horse leans on the strap, which is tied to bend him, take off the cavesson, and use in its stead a long string, coming first from the ring on the pad, and from thence through the eye of the snaffle; and, also, if the horse's head is low, through the ring on the head-stall, and from thence through the ring on the pad, into the hand of the person on foot, who must humour it, yielding and shortening it occasionally, which will prevent the horse from leaning, and will render him light. The long string, thus used, will do very well alone without the strap, when the horse is accustomed to bend, and to trot determined round the person who stands in the centre, and holds the long string.

After horses have been accustomed to be bent with a strap at the *longe,* they will very soon *longe* themselves, as it were; that is to say, that when bent with the strap they will go very well without any longe; and, indeed, horses may be brought, with patience and gentleness, to work very well so, on almost all lessons in hand.

Next begin the *epaule en dedans*; and after that, the head to the wall, the croupe to the wall, backing, &c. on all figures by degrees.

Most horses generally go the head to the wall more cordially at first than they do the croupe to the wall. Working in the hand, is, in fact, a kind of driving: two persons on foot should be employed; one, indeed, may do, if he is a handy person, but two are much better at first. One of these should

hold a long string, and in some lessons, two, and a *chambriere* standing at some distance from the horse; the other person stands near the horse, holding the reins of the snaffle, and a hand whip, to keep the horse off from him if necessary. Girt on a pad with a crupper to it on the horse. The pad should have a large ring in the centre upon the top of it, and about four inches lower down on each side, a smaller one.

On the top of the pad, a little forwarder than the great ring, there must be a small strap and buckle, which serve to buckle in the snaffle-reins, and to prevent their floating about, and the horse entangling his legs in them in the longe. Horses should never be worked in hand with any thing in their mouths but a large, thick, plain, running, snaffle; a bridle is too ticklish, and would spoil the horse's mouth, unless it be in the hands of a very able master indeed; for, in working in hand, it is next to impossible to be sufficiently gentle and delicate with it. The eyes of the snaffle should be large, and on the head-stall, about the heighth of the horse's eye, should be fixed a ring on each side. The person with the *chambriere* holds a long string, about eighteen feet long, (so as to be out of the reach of the horse's heels) which must be smooth, of a proper thickness, and run freely. This string, in the action of the *epaule en dedans,* or shoulder within to the right, is buckled to the right hand small ring on the pad, where the reins of the running snaffle are first fixed; from thence it passes through the right eye of the snaffle, and from that to the right hand small ring on the pad, where the reins of the running-snaffle are first fixed; from thence it passes through the right eye of the snaffle, and from that to the right hand small ring on the head-stall, and through the large ring on the top of the pad, into the hand of the person who holds the chambriere; and who, by means of this string, bends the horse to the right, and brings in his shoulder, following him on his right side, and tightening or loosening the string as he finds it necessary. If the horse's fore-hand is high, and well placed, it will not be necessary to pass the string through the ring upon the head-stall; at the same time, another person standing near the horse, the snaffle reins separated, and the right one tied loose on the right side, leads him on with the left rein of the snaffle in his hand, walking near his head, and taking care to keep the shoulders in their proper place, and not to take off from the bend to the right, which is occasioned by the string in the other person's hand, who will find it most convenient, when working on this lesson to the right, to hold the string in his right hand, and the *chambriere* in his left, and so *vice versa;* these he must make use of, and keep himself more or less upon the flank centre, or rear of the horse, as he finds it necessary. In the changes from right to left in the *epaule en dedans,* the person nearest the horse must be quick in getting on the horse's left side, and the person with the *chambriere* must do the same; the former coming round with the horse's head before him, and the latter round by his croupe behind him, and so *vice versa* to the left. In the head, and in the croupe to the wall, both the men are already properly placed for the changes.

In this lesson of the *epaule en dedans,* in

hand, when a horse is very clumsy, heavy in hand and stiff, headstrong, vicious, or apt to strike with his fore-feet, or to rear or kick out behind, a stick or pole is very useful. The stick, about seven feet long, is fastened by a strap or buckle through the eye of the snaffle, where the reins pass; a man places himself at a certain distance on the right side of the horse's head, going before him over the ground to be worked upon, and holds the stick at arms length, having tied it so as to leave room to play, as he draws it gently backwards and forwards to refresh the horse's mouth. The other man holds a long rein and the *chambriere.* Like the pillars, this lesson is good or bad, according to the hands it is in. Instances have occurred, of a horse's jaw being broken, and his tongue cut in two by it; and, therefore, it should be used in the most skilful and temperate manner, or not at all: it is useful in raising horse's heads, particularly those that are apt to get their heads down, or to kick in *piaffing* on forwards. Almost any lessons may be accomplished by the help of this pole.

To work in hand, the head and the croupe to the wall, two strings, fixed as above described, (only that they must not come at all through the large ring on the pad; but from the small rings on the head-stall, immediately into the hand of the person who holds the *chambriere*) must be used, one on each side; one string, indeed, might do; the right one, in working to the right, and so *vice versa;* but two are much better, and often necessary to keep the horse in a proper position. Passing the strings through the rings of the head-stall is not necessary when the horse carries his fore-hand high, and well; and when they do pass through them, great care must be taken, by a gentle use of them, that they do not gag the horse; these two strings must be buckled together, and meet in the hand of the person who holds the *chambriere,* and who is on the left side of the horse; the snaffle-reins too must be joined, and the person near the horse, who holds them, must also be on the left side of him and near his shoulder, holding the right rein of the snaffle the shortest, to bend him that way, (as does also the right string kept the tightest in the other person's hand) and making use also of the left rein, when necessary to keep the horse in a proper position, and to guide him occasionally, as if he was on his back, and never so as to take away from the bend.

The lesson of the head or croupe to the wall, is often done better in hand, when the man who follows, and holds the *chambriere,* has no long reins, or else only one long rein, unless the horse is very aukward, refractory, or playful; for one of the long reins is apt to get into the way of the man who is nearer to the horse. When only one long rein is used, it will be, of course, the right hand one to the right, and so *vice versa;* and, indeed, in other lessons in hand, these long reins are no longer necessary when the horse is grown handy, provided the man nearer to him has a feeling, sensible, good hand, and perfectly knows what he is about.

On the head or croupe to the wall in hand, it is a good way, at first, to have a man holding a long string buckled simply to the eye of the snaffle, go before the horse, leading him, as it were, along the wall. Horses

will, with care and patience, not be very long before they work well in hand; though, indeed, never so truly or delicately as under a good rider. Horses worked well in hand, look particularly well coming up the middle of the school, and backing there on the *piaffer;* as also in the *piaffer* both bent and straight, animated properly, and kept in good position, their mouths being properly played with and humoured. When horses become free, and familiar with this method of working them in hand, it should be done by degrees on all paces, fast and slow, but always without noise, hurry, or confusion.

Nothing determines them better than working in hand, when it is well done. As the want of great accuracy and delicacy is, from the great numbers, in some measure unavoidable in military schools, it is not amiss to teach troop-horses a little their lessons in hand, before the men perform them on their backs. One of these strings may be used by the man who holds the *chambriere* on foot, when the horse is mounted; and it is a good method to do so, sometimes, on all lessons and on all figures. This string fastened, as in the *epaule en dedans*, only that it goes immediately from the eye of the snaffle into the hand of the person on foot, who must stand in the centre of the circle, helps the person who is mounted very much to bend him, as it does, indeed, in all other lessons. When the horse has a rider on him, only one string is necessary to be held by the person on foot. In the head to the wall, croupe to the wall, piaffing, &c. &c. it must be shifted (for example, in the head to the wall, &c. &c. to the right) under the horse's jaw, from through the right eye of the snaffle, into the hand of the person on foot, who is on the left of the horse; for it need not pass through the small ring on the head-stall of the snaffle, the man upon the horse being the proper person to keep the horse's head up.

It is sometimes expedient to pass the string over the horse's neck, under the rider's hand, instead of under the horse's jaw. It must be fixed, in the first place, like a running snaffle, to the skirts of the saddle, from whence it goes, as above-mentioned, through the eye of the snaffle, into the hand of the person on foot, after having passed under the horse's jaw. To *piaffer* too without a rider, or square, and all other figures advancing gently and well into the corners, is a very good lesson. One man must stand exactly before the horse with his face to him, holding the two eyes of the snaffle, and keep the horse advancing gently, by going backwards himself. The man with the *chambriere* must stand behind the horse, and animate him, or not, as he finds necessary. Backing the horse is also sometimes useful; that may also be done on all figures.

The degree of vivacity, or dulness in the horse, must determine how the man with the *chambriere* is to act, and where he is to place himself when the horse is backing.

A horse, when well taught, may be worked; and it is then the best way, by a single man, with long reins and a *chambriere*, without any other person to assist. All airs in hand should be worked in that manner whenever the animal is become supple and obedient.

Working in hand is particularly useful in military equitation, because it spares the horse the fatigue of any weight upon him; and the want of a proper allowance of corn,

to enable horses to go through the work with vigor, is a general army complaint almost in all European services. When it is well performed, it has a masterly, active appearance, and is always very useful in suppling horses; but, past all doubt, a good rider mounted, who feels every motion of the horse, must act with more precision, delicacy, and exactness.

ON THE HEAD TO THE WALL, AND THE CROUPE TO THE WALL.

This lesson is what is called, vulgarly and improperly, *passaging*. It consists in teaching the horse to go sideways, either to the right or left, as the rider chuses; it is principally useful in military manœuvres; but it is, nevertheless, useful to horses in general, especially carriage-horses, as it enables them to turn with greater facility, and renders them less liable to bruise their legs and feet by treading one upon the other.

This lesson should be practised immediately after that of the *epaule en dedans,* in order to place the horse properly the way he goes. The difference between the head to the wall, and the croupe to the wall, consists in this; in the former, the fore parts are more remote from the centre; and, consequently, go over more ground. In both, as in all other lessons, the shoulders must go first. In riding-houses, the head to the wall is the easiest lesson of the two; the line to be worked on being marked by the wall, which is not far from the horse's head. All lessons ought to be frequently varied, to prevent *routine.*

The motion of the legs in the lesson to the right, is the same as that of the *epaule en dedans* to the left, and so *vice versa;* but the head is always bent, and turned differently. In the *epaule en dedans,* the horse looks the contrary way to that which he goes; in this he looks the way he is going. In the beginning, very little bend must be required; demanding too much at once would perplex the horse, and make him defend himself; it is to be augmented by degrees. If the horse absolutely refuses to obey, it is, most probably, a proof that either he or his rider has not been sufficiently prepared by previous lessons. It may happen, that weakness, or a hurt in some part of the body, or sometimes bad temper (though more frequent in the rider than the horse) may be the cause of the horse's defending himself. It is the rider's business to find out from whence the obstacle arises, and to remove it; and if he

finds it to be from the first-mentioned cause, the previous lessons must be resumed again for some time. If it arises from the second cause, proper remedies must be applied; and if from the last cause, when all fair means that can be tried have failed, proper corrections, with coolness and judgment, must be used.

In practising this lesson to the right, bend the horse to the right with the right rein, helping the left leg over the right (at the same time when the right leg is just come to the ground) with the left rein crossed towards the right, and keeping the right shoulder back with the right rein towards your body, in order to facilitate the left leg's crossing over the right, and so *vice versa* to the left; each rein helping the other by their properly mixed effects.

In working to the right, the rider's left leg helps the hinder parts on to the right, and his right leg stops them if they get too much so, and so *vice versa* to the left; but neither ought to be used, till the hand, being employed (as has been before explained) in a proper manner, has failed, or finds that a greater force is necessary to bring about what is required, than it can effect alone; for the legs should not only be corresponding with the hand, but also subservient to it; and all unnecessary aids, as well as force, ought always to be avoided as much as possible. In first beginning to teach each lesson, the croupe must be but little constrained; as the horse grows more supple, engage it more by degrees.

In the execution of all lessons, the equilibre of the rider's body is of great use, ease, and help, to the horse; it ought always to go with and accompany every motion of the animal; when to the right, to the right; and when to the left, to the left; for if it does not, it is a very great inconvenience to the horse's going.

This lesson is particularly useful in military service; for example, in all opening or closing of the ranks, where the line is required to be extended or reduced: it should be practised in all paces, fast as well as slow; but, of course, gently at first; and changes also, from one hand to the other, must frequently be made on two pistes. It is natural to imagine, that some horses, as well as some men, will be found more or less intelligent, active, vigorous, and supple than others; and, accordingly, more or less is to be demanded and expected from them. This, and all other lessons, may be performed with or without a longe, as may be found useful.

Almost every horse, in every lesson or action, has his own peculiar appui or degree of bearing; and, also, a sensibility of mouth, as likewise a rate of his own, which it is absolutely necessary for the rider to discover and make himself acquainted with. A bad rider always takes off, at least, the delicacy of both, if not absolutely destroys it; which last is, indeed, too often the case. The horse will inform his rider when he has got his proper bearing in the mouth, by playing pleasantly and steadily with his bit, and by the foam about his chaps. A delicate and good hand will not only always preserve a light *appui*, or bearing in its sensibility, but also of a heavy one, (whether natural or acquired) make a light one. The lighter this appui can be made, the better; but the rider's hand must correspond with it; if it does not, the more the horse is properly pre-

pared, so much the worse for the rider. Instances of this inconvenience of the best of *appuis,* when the rider is not equally taught with the horse, may be seen every day in cases where gentlemen, who try to get their horses well bitted, as it is called, without being equally prepared themselves for riding them; the consequence of which is, that they ride in danger of breaking their necks; till, at length, after much pulling and harassing, and by the joint insensibility and ignorance of themselves and their grooms, the poor animals gradually become mere senseless, unfeeling blocks, and, thereby, grow what they call settled and pleasant; that is to say, in reality, that they become as insensible as their riders, who, because they are void of feeling, and are not firm, must either hold by the bridle, or fall. Indifferent horsemen always prefer a horse that will let them bear a little on the mouth: this preference, however, arises most clearly from an utter ignorance of the subject; for it is an indisputable fact, that no horse can bear hard upon the hand without going, more or less, heavily on his shoulders, and this is, certainly, a mode of going which every man would deprecate who wishes to ride pleasantly and safely. To help a horse every now and then with the hand properly, is a very different and a very useful thing. When the proper appui is found, and made of course as light as possible, it must not be kept dully fixed without variation, but be played with; otherwise, one continued tension of the reins, though not a violent one, would render both the rider's hand and the horse's mouth very dull. The slightest, and frequent giving and taking, is, therefore, necessary to keep both perfect. Whatever pace or degree of quickness you work in (be it ever so fast or ever so slow) it must be cadenced, for time is as necessary for a horseman as for a musician.

Every dragoon should be well instructed in this lesson of the head and tail to the wall; for scarcely any manœuvre can be performed without it; in closing and opening of files, it is almost every moment wanted. Few regimental riding-masters either practice it right, or teach it right, as they effect, but too often by force alone, and make the horse look the wrong way; and instances may be perpetually seen, where the rider, in endeavouring to make his horse go sideways, uses either the wrong hand or the wrong heel at the same time; whereby the horse becomes confused, and incapable of understanding what is required of him.

This lesson of the head, or croupe, to the wall, and all others, may be done on any pace; for if a horse is well taught on ever so slow a pace, he may, by degrees, without difficulty, be taught to do the same lesson with any degree of velocity. When he does it on the gallop, the rider must be quiet, and exact in the changes, and be then careful to stop the horse's leg with which he leads just at the time when it is most forward, before it comes to the ground, by means of a slight tension of the rein on the same side, which will, of course, make the other leg go forwards, and lead; and that the horse may change his hind-leg at the same time, which is absolutely necessary, the rider must, at the same time, cross over his hand, replacing it at the moment the horse has changed both before and behind.

The method of suppling horses with riders upon them should next be proceeded

upon, and which may be done as follows:—

When a horse is well prepared and settled in all his motions, and the rider firm, (which is absolutely necessary), it will be proper then to proceed towards a farther suppling and teaching of both. The greatest exactness and gentleness is necessary to accomplish this object, but this precaution is, unfortunately, but seldom attended to. In setting out upon this part of the system of equitation, before which the horse should be taught to go well into the corners of the riding-house, both with his fore and hinder parts, on a walk, (without being bent, for that cannot be expected so early,) and be very light in hand; when he does it, begin by bringing the horse's head a little more inwards than before, pulling the inward rein gently to you by degrees. When this is done, try to gain a little on the shoulders, by keeping the inward rein the shorter, as before, and the outward one crossed over towards the inward one. The intention of these operations is this; the inward rein serves to bring in the head, and procures the bend; whilst the outward one, that is a little crossed, tends to make that bend perpendicular as it should be; that is to say, to reduce the nose and the forehead to be in a perpendicular line with each other; it also serves, if put forwards, as well as also crossed, to put the horse forwards, if found necessary, which is often requisite, many horses being apt in this, and in other exercises, rather to lose their ground backwards than otherwise, when they should rather advance. If the nose were drawn in towards the breast beyond the perpendicular, it would confine the motion of the shoulders, and have other bad effects. All other bends, besides what are above specified, are false. The outward rein being crossed, not in a forward sense, but rather a little backwards, serves also, when necessary, to prevent the outward shoulder from getting too forwards, which facilitates the inward leg's crossing it, which is the motion that so admirably supples the shoulders. Care must be taken, that the inward leg pass over the outward one without touching it; this inward leg's crossing over must be helped by the inward rein, which should be crossed over towards, and over the outward rein every time the outward leg comes to the ground, in order to lift and help the inward leg over it. At any other time than just when the outward leg is come to the ground, it would be wrong to cross the inward rein, or to attempt to lift up the inward leg by it; indeed, it would be demanding an absolute impossibility, and pulling about the reins and the horse to no purpose; because, a very great part of the horse's weight resting upon the inward leg, would render such an attempt not only fruitless, but also prejudicial to the sensibility of the mouth, and probably oblige the horse to defend himself, without being productive of any suppling whatever.

When the horse is thus far familiarly accustomed to what is required of him, (but by no means before he is entirely so,) then proceed to effect, by degrees, the same crossing in his hind-legs.

By bringing in the fore-legs more, the hinder ones will, of course, be engaged in the same work; if they resist, the rider must bring both reins more inwards; and, if necessary, put back also, and approach his inward leg to the horse; and if the horse

throws out his croupe too far, the rider must bring both reins outwards, and if absolutely necessary, (but not otherwise,) he must also delicately make use of his outward leg for a moment, in order to replace the horse properly; observing, that the croupe should always be considerably behind the shoulders, which, in all action, should go first. and the moment that the horse obeys, the rider must put his hand and leg again into their usual position. In this lesson, as, indeed, in almost all others, the corners must not be neglected, the horse should go well, and thoroughly into them. His fore-parts may be brought into them, by crossing over the inward rein towards the outward one, (but without taking off from the proper bend of the head, neck, and shoulders,) and bring them out of the corner again, by crossing over the outward rein, towards the inward one. These uses of the reins have also their proper effects upon the hinder parts.

Nothing is more ungraceful in itself, more detrimental to the seat of the rider, or more destructive of the sensibility of a horse's sides, than a continued wriggling unsettled motion in a horseman's legs, which prevents the horse from ever going a moment together true, steady, or determined.

It is impossible, on the whole, for a man to be too firm, settled, and gentle. A soft motion may be always enforced, if necessary, with ease; but a harsh one is irrecoverable, and its bad consequences very often almost irreparable. Horsemen are very apt to get this trick of wriggling their legs, even in going straight forward, and more so with one leg, particularly put back in changing of hands, which should be done by the reins only, in a graceful, still, manner, and without letting the horse either throw himself over too fast, or go lazily over to the other hand; the rider's hand alone is almost always sufficient, and if it should not, many things should be tried, before so ugly and bad a resource as the above-mentioned is thought of: first, that of squeezing the thighs; secondly, approaching gently the calves of the legs; and, thirdly, using the spur; but without distorting the leg or foot, which a good master will not permit to be done.

A horse should never be turned without first moving a step forwards; an imperceptible motion of the hand only, from one side to the other, is sufficient to turn him. It must, also, be a constant rule, never to suffer a horse to be stopped, mounted or dismounted, but when he is well placed. At first, the figures worked upon should be large, and afterwards made less by degrees, according to the improvement which the man and horse make; and the cadenced pace also which they work in, must be accordingly augmented.

The changes from one side to the other must be in a bold, determined, trot; and, at first, quite straight forwards, without demanding any side motion on two lines, which it is very necessary to require afterwards, when the horse is sufficiently suppled. By two lines, or *pistes*, is meant, when the fore and hinder parts do not follow, but describe two different lines.

In the beginning, a *longe* is useful on circles, and also on straight lines, to help both the rider and the horse; but afterwards, when they are grown more intelligent, they should go alone.

No one, not even the best riders, should ever quite leave off trotting every now and then in the *longe*, both with and without stirrups. At the end of the lesson rein back, and then put the horse, by a little at a time, forwards, by approaching both legs gently, and with an equal degree of pressure to his sides, (if necessary) and playing with the bridle; if he rears, push him out immediately into a full trot. Shaking the *cavesson* on the horse's nose, and also putting one's self before him, and rather near to him, will, generally, make him back, though he otherwise refuse to do it; and, moreover, a slight use and approaching of the rider's legs will, sometimes, be necessary in backing, in order to prevent the horse from doing it too much on his shoulders; but the pressure of the legs ought to be very small, and taken quite away the moment he puts himself enough upon his haunches. The horse must learn by degrees to back upon a straight line, but to make him do so, the rider must not be permitted to have recourse immediately to his leg, and so distort himself by it, (which is generally practised by the common riding-masters) but first try if crossing over his hands and reins, to which ever side may be necessary, will not be alone sufficient, which most frequently it will; but if it is not, then employ the leg, which should never be used till the last extremity. After a horse is well prepared and settled, and goes freely in his several paces, he ought, in all his exercises, to be kept to a proper degree upon his haunches, with his hinder legs well placed under him, whereby he will be always pleasant to himself and his rider, will be tight in hand, and ready to execute whatever may be demanded of him in reason, with facility, vigor, quickness, and delicacy.

The common method that is used of forcing a horse sideways, is a most glaring absurdity, and very hurtful to the animal in its consequences; for instead of suppling him, it obliges him to stiffen and defend himself, and often makes an animal that is naturally benevolent, a restive, frightened, and vicious man-hater for ever. In general, it is a maxim as constantly to be remembered as it is true, that it is more difficult to correct faults and bad habits than to foresee and prevent them.

Horses, under riders who use their legs, are, when going on two *pistes*, or lines, perpetually setting off with the croupe foremost, than which nothing hardly can be worse. It is owing to the leg of the rider being applied to the side of the horse, before the hand has determined the fore-parts of the animal on the line which he is to go.

For horses that have very long and high fore-hands, and who poke out their noses, a running-snaffle is of excellent use; but for such as bore and keep their heads low, a common one is preferable; though any horse's head may be kept up also with a running one, by the rider's keeping his hands very high and forwards; but that occasions a bad and aukward position of the man. These bridles, however, are unsuited, as plainly appears by their construction, for tripping and stumbling horses. Whenever either is used alone, without a bridle, upon horses that carry their heads low, and that bore, it must be gently sawed about from one side to the other.

From the construction of a running-snaffle,

it may be seen, that the purchase of it is greater than that of a common one. As its first point of *appui* is at the pommel of the saddle, lower than the rider's hand, it may also easily be perceived why they are good for horses that have high, light, fore-hands, and why they are bad for such as have low and heavy ones. They are good for many horses when used as a bridoon with a bridle, in cases of a remarkably long, high fore-hands, and poking heads.

On horses whose heads and fore-hands are difficult to be raised, a running-snaffle, but not one fixed in the usual manner, is often very useful. The reins of it should be passed through an eye fixed on each side the head, pretty high up on the head-stall towards the ears, before they come into the rider's hand. When fixed at first to the rings on the head-stall, and coming through the eyes of the snaffle into the rider's hand, without being at all fixed to the saddle, they will often be very useful. This lesson of the *epaule en dedans* is the very touch-stone of horsemanship both for man and horse. Neither one nor the other can be dressed to any degree without a consummate knowledge of it; but it must not, on any account, be practised in the field in exercises or evolutions, where the horses must always bend towards the side they are going; a thing, however, but very rarely seen. The *epaule en dedans* reversed, is particularly advantageous to horses that are apt to throw themselves forwards. This is effected by working the shoulders on the outward larger circle, and the croupe on the smaller circle next the centre.

Horses well perfected in the *epaule en dedans* may undertake, and soon learn, any other lessons whatever. It ought, like all others, to be practised on all figures, circles, straight lines, squares, &c. &c. when on this last, care must be taken concerning the shoulders and croupe; that whichever of them is to enter the corner first, may go quite into it, and let that which goes in last, follow exactly the same ground. This rule cannot be too much attended to. The croupe, indeed, can never enter the corner first, except in working backwards.

TEACHING TO REIN BACK.

No horse can be said to be completely broken in, either for harness or the saddle, that has not been taught to rein back with ease and steadiness. For when it is considered, how often a horseman or a coachman may get into situations where he can neither move forwards, nor turn round, it must be sufficiently evident, that the only way of extricating his horse from the difficulty he may have got into, is by running back. Those horses, therefore, which are never put in the pillars, nor taught to *piaffe*, should be reined back a good deal; sometimes slow, sometimes fast, but always steadily, and without confusion, both in hand and when ridden. It is not adviseable, however, to finish your lesson by reining back, especially with horses that have a disposition towards retaining themselves; but always move them forwards, and a little upon the haunches also after it, before you dismount.

In performing these motions, the head and fore parts should be kept high, and free, for any confinement there destroys action. To bend the horses sometimes in doing it, is a good lesson. This may be done according as horses are more or less suppled, either going forwards, backwards, or in the same place. For to *piaffer* in backing is rather too much to be expected in the hurry which sometimes attends a regimental riding-school. This lesson should never be attempted at all, till the horse is very well suppled, and somewhat accustomed to be put together; otherwise, it will have very bad consequences, and create restiveness, especially if not practised with the utmost exactness and delicacy, and particularly with horses that have the least inclination to retain, or to defend themselves. If the horse refuses to back, and stands motionless, the rider's legs must be approached with the greatest gentleness to the horse's sides, at the same time as the hand is acting on the reins to solicit the horse's backing. This seldom fails of procuring the desired effect, by raising one of the horse's fore-legs, which being in the air, has no weight upon it, and is, consequently, very easily brought backwards by a small degree of tension in the reins. When this lesson of *piaffing* is well performed, it is very noble and useful, and has a pleasing air. Young and raw horses, of course, cannot be ready prepared in it for this purpose, but a little time and diligence overcomes, in general, obstacles of this nature.

Piaffing is particularly serviceable in the pillars, for placing scholars well at first. Very few horses execute it properly, especially the English ones, which almost invariably

sink their fore-quarters instead of the hind-quarters; and, thereby, may be more truly said to work upon their shoulders instead of their haunches. It should, however, be practised very sparingly with young horses, as it tries the hock-joints extremely, and is very apt to produce spavins, curbs, and thorough-pins, especially with those that are what is called cat-hammed. Nevertheless, a moderate use of the pillars is useful to young horses, as it supples them, and gives them the faculty of advancing their hind-legs well under the body, and also gives motion and pliancy to the hocks.

The single pillar is, in general, both useless and ridiculous; and are, indeed, now generally laid aside. A kind of moving pillars may be made use of by the means of holding a rein on each side, by a man on each side of him; another person, with a chambriere, follows, and animates or sooths him, as he finds necessary, and makes him piaffe backwards or forwards, with or without long reins, as is found expedient. When the long reins or strings are used, or rather the long string or rein, (for one is generally sufficient) it must be fixed on the side the horse is to be bent. This string is fixed to the saddle, and goes through the eye of the snaffle, and also through a long ring on the head-stall, if the horse is apt to get his head low; one man, besides the man who holds the chambriere, is sufficient in this case; the horse is bent to the right or left, or kept wholly straight. This method is particularly useful for horses whose action of their hinder-legs is confined, and want liberty. The same rule will hold good for all horses so circumstanced in all they do; for they should always be worked boldly out on large scales, and never confined to small figures. A horse looks remarkably well in this attitude, if those who hold him have light hands, and keep his head high. They should each of them have a switch, to help them to keep the horse straight in case of necessity.

It would scarcely be possible, nor, indeed, is it necessary, to teach the more refined and difficult parts of horsemanship in regiments, where there must naturally be such a great variety of dispositions, both in men and horses. Still it is necessary, that some general system should be adopted, for it should never be left to the caprice of individuals, who cannot possibly understand the subject without the knowledge of those sound and rational principles upon which it is founded. The celebrated Earl of Pembroke, in his small, but excellent treatise on this subject, observes, "that an ill-founded prejudice partially directs the judgment of the greater part of these people who call themselves connoisseurs in horsemanship. He says, "I know full well, that they suppose that practice alone can insure perfection, and that, in their arguments in favor of this deplorable system, they hold all treatises on the subject and their authors in the greatest contempt. But horsemanship is, confessedly, a science; every science is founded on principle, and theory must, indispensably, be necessary; because, what is truly just and beautiful cannot depend upon chance. What, indeed, (continues the same author) is to be expected from a man who has no other guide than a long continued practice, and who must, of necessity, labour under very great uncertainties. Incapable of accounting rationally for what he does, it must be impossible for him to enlighten me, or communicate to me th

knowledge which he fancies himself possessed of. How, then, can I look up to such a man as an authority? On the other hand, what advantages may not be obtained from the instructions of a person, whom theory enables us to comprehend, and feel the effects of his slightest operations, and who can explain to me such principles as an age of constant practice only could never put me in a way of acquiring."

Habit, and continual practice, will go a great way in all exercises which depend on the mechanism of the body, but unless this mechanism is properly fixed, and supported on the solid basis of theory, errors will be the inevitable consequence. In working a horse, a principal object should be to exercise the genius and memory of the animal, as well as his body. The first thing to be done is to endeavour to discover his natural inclination, and to get a thorough knowledge of his abilities, in order to take advantage in future of that knowledge.

Without the help of lights derived from just principles, it is morally impossible that a horseman should make use of his reason upon all occasions, or be able to find out with care and attention whatever may lead him to the accomplishment of his object, because, in few words, there is an absolute necessity of some method for improving the natural disposition of the animal, which, in some cases, is defective and intractable. A good judgment in regard to horses is vulgarly thought so familiar, and the means of dressing him so general, and so common, that it is very rare to meet with a man who does not flatter himself that he has succeeded in both those points. And, while riding-masters sacrifice every hour of their lives to attain knowledge, still find themselves immerged in darkness and obscurity; men, the most uninformed, imagine that they have attained the summit of perfection; and, in consequence thereof, suppress the least inclination of learning even the first elements. A blind and boundless presumption is the characteristic of ignorance. The fruits of long study and application amount to a discovery of innumerable fresh difficulties, at the sight of which, a diligent man, very far from over-rating his own merit, redoubles his efforts in pursuit of further knowledge.

An old French author (M. de Saunier,) speaking upon this subject, makes the following observations: "All those who fancy themselves good horsemen are not so clever as they imagine, for they consider it quite sufficient to be able to manage a horse in the voltes, pirouettes, &c. and to stick on his back in the high airs of the manage, such as the balotade, and the capriole. They would, however, find themselves very imperfect in a campaign, and would perceive the necessity of perfecting a charger in all the business of the riding-school; for I maintain, that no horse that is not supple can be proper for military purposes, except for drawing baggage-waggons or artillery; an employment which requires strength alone, and not suppleness or dexterity. But for troop-horses, that are to be ridden in battle, it is necessary that they should perfectly understand both the hand and heel of the rider. With a horse so educated, a soldier may do more execution in an action than three or four that are ignorant."

He says, "Formerly England possessed several finished horsemen; but, at present, the people of that country give themselves

but little trouble about the science of horsemanship; so that if a foreign riding-master should visit that country, although he might be the most skilful master of his art in the world, he would neither be listened to, nor regarded. But a young jockey, light, active, and bold, and capable of riding a race at Newmarket, would be more esteemed, as well as the training-groom, who had to prepare the horse for the race.

"But, (continues M. Saunier) to do justice to the English cavalry, it is necessary to observe, that they have a regular riding-master attached to each regiment. And, it may be said with truth, that their cavalry is one of the best in Europe. For, although their riding-masters are not the most skilful, they know how, nevertheless, to teach the horsemen to hold their bridles, and to guide their horses, and if the same thing were done in other countries, we should not see so many defective bodies of cavalry in Europe."

When cavalry does not do its duty completely in a battle, it is unfair to charge it with want of bravery, because the knowledge of managing their horses well, goes a great way towards rendering it effective in action.

The necessity of thoroughly breaking troop-horses is sufficiently manifest for the following reasons:—

In the first place, the dragoon having to carry a sword in his right hand, has only one hand at liberty to manage the reins and to guide his horse. In the next place, the advantage he must have over a less skilful adversary must be evident, in his being able either to approach or to recede from his antagonist, as occasion may require. But this cannot be done except the horse's mouth is possessed of that nice susceptibility of understanding the hand of the rider; and being, thereby, ready to obey the slightest signal either from the hand or the heel. A troop-horse of this description will, at any time, qualify his rider to engage with an adversary, even of superior strength, who has not the same advantage in regard to his horse, and will often give him the victory.

Bourgelat, on the subject of horsemanship, dwells greatly, as well as the Duke of Newcastle, on the utility of the trot, as the basis of all other lessons.

He says: "when a horse trots, his legs are in this position; two in the air, and two on the ground, at the same time, crosswise; that is to say, the near foot before, and the off foot behind, are off the ground, and the other two upon it, and so alternately with the other two. This action of his legs is the same as when he walks, except that in the trot his motions are more quick. All writers, both ancient and modern, have constantly asserted the trot to be the foundation of every lesson that can be taught a horse; there are none, likewise, who have not thought proper to give general rules on this subject, but none have been exact enough to descend into a detail of particular rules, and to distinguish such cases as are different, and admit of exceptions, though such often are found from the different tempers and shapes of horses, as they happen to be more or less suited to what they are destined; so that by following their general maxims, many horses have been spoiled, and made heavy and aukward, instead of becoming supple and active, and as much mischief has been occasioned by adopting their principles, although just, as if they had been suggested by ignorance itself.

Three qualities are essentially necessary to make the trot useful. It ought to be extended, supple, and even or equal. These three qualities are related to, and mutually depend upon, each other; in effect, you cannot pass to the supple trot, without having first worked on the extended trot, and you can never arrive at the equal and even trot, without having first practised the supple. By the word extended, is meant that pace in which the horse trots out without retaining himself, being quite straight, and going directly forwards; this, consequently, is the kind of trot with which you must begin; for before any thing else should be thought of, the horse should be taught to embrace and cover his ground readily, and without fear. The trot, however, may be extended without being supple, for the horse may go directly forward, and yet not have that ease and suppleness of limb, which distinguishes and characterizes the supple.

I define the supple trot to be that in which the horse, at every motion that he makes, bends and plays all his joints; that is to say, those of his shoulders, his knees, and feet, which no colts or raw horses can execute, that have not their limbs suppled by exercise, and who generally trot with a surprising stiffness and aukwardness, and without the least play in their joints. The even or equal trot, is that wherein the horse makes all his limbs and joints move so equally and exactly, that his legs never cover more ground one than the other, nor at one time more than another. To do this, the horse must of necessity unite and collect all his strength, and if I may be allowed the expression, distribute it equally through all his joints. To go from the extended trot to the supple, you must gently and by degrees hold in your horse, and when by exercise he has attained sufficient ease and suppleness to manage his limbs readily, you must insensibly hold him in still more and more; and, by degrees, you will lead him to the equal trot.

The trot is the first exercise to which a horse is put; this is a necessary lesson, but if given unskilfully, it loses its end, and even does harm. Horses of a hot, fretful, temper, have generally too great a disposition to the extended trot; never abandon such horses to their will, hold them in, pacify them, moderate their motions; by retaining them judiciously, their limbs will grow supple, and they will acquire, at the same time, that union and equality which is so necessary.

If you have a horse that is heavy, consider if this heaviness or stiffness of his shoulders or legs is owing to a want of strength, or of suppleness; whether it proceeds from his having been exercised unskilfully, too much, or too little. If he is heavy, because the motions of his legs are naturally cold and sluggish, though, at the same time, his limbs are good, and his strength is only confined, and shut up; if I may so say, a moderate, but continual exercise of the trot will open and supple his joints, and render the action of his shoulders and legs more free and bold; hold him in hand, and support him in the trot, but take care to do it in such a manner as not to check or slacken his pace. Aid him, and drive him forward while you support him; remember, at the same time, if he is loaded with a great head, the continuation of the trot will make his *appui* hard and dull; because, he will by this means abandon himself still more, and weigh upon the hand. All horses that are inclined to retain

themselves, and to resist by so doing, should be kept to the extended trot. Every horse of this description is naturally disposed to unite himself, and to collect all his strength; the only way to be adopted with such horses is to force them forwards; the moment he obeys, and goes freely on, retain him a little, yield your hand immediately after, and you will then find that the horse will, of himself, bend his joints, and go united and equally.

A horse of a cold and sluggish disposition, which has, nevertheless, strength and bottom, should likewise be put to the extended trot. As he grows animated, and begins to go free, keep him together by little and little, in order to lead him insensibly to the supple-trot; but if, while you keep him together, you perceive that he slackens his action, and retains himself, give him the aid briskly, and push him forwards, keeping him, nevertheless, gently in hand; by this means, he will be taught to trot freely and equally at the same time.

If a horse of a cold, sluggish, temper, is weak in his legs and loins, you must manage him cautiously, in working him in the trot; otherwise, you will enervate him, and spoil him. Besides, in order to make the most of a horse that is not strong, endeavour to give him wind, by working him slowly, and at intervals, and by increasing the vigor of his exercise by degrees, for it should be remembered, that a horse ought always to be dismissed before he is spent, and overcome by fatigue. Never push your lessons too far, in hopes of suppling your horses limbs; instead of this, you will falsify and harden his appui, which is a case that happens too frequently. Further, it is of importance to remark, that you ought at no time, neither in the extended supple, or equal trot, to confine your horse in the hand, in expectation of raising him, and fixing his head in a proper place.

If his appui be full in hand, and the action of his trot checked and restrained by the power of the bridle, his bars would very soon grow callous, and his mouth be hardened and dead; if, on the contrary, he has a fine, and sensible mouth, this very restraint would offend, and make him uneasy; you must endeavour then, as has already been said, to give him, by degrees and insensibly, the true and just appui, to place his head and form his mouth by stops and half stops, by sometimes moderating and restraining him, with a gentle and light hand, and yielding it to him immediately again, and by sometimes letting him trot without feeling the bridle at all. There is a difference between horses that are heavy in hand, and such as endeavour to force it. The first sort lean, and throw all their weight upon the hand, either as they happen to be weak, or too heavy and clumsey in their fore-parts, or from having their mouths too fleshy and gross; and, consequently, dull and insensible. The second pull against the hand, because their bars are hard, lean, and generally round. The first may be brought to go equal, and upon their haunches, by means of the trot and slow gallop, and the other may be made light and active by art, and by settling them well in their trot, which will also give them strength and vigor. Horses of the first sort are generally sluggish; the other kind are, for the most part, impatient and disobedient, and upon that very account,

more dangerous and incorrigible. The best proof of your horse's trotting well, is, that when he is in his trot, and you begin to press him a little, he offers to gallop. After having trotted your horse sufficiently upon a straight line, or directly forwards, work him upon circles; but before he is put to this, walk him gently round, that he may know the ground he has to go over. A horse that is loaded before, and heavily made, will find more pain and difficulty in uniting his strength, in order to be able to turn, than in going straight forward; finish them in the same manner, observing, that the intervals between the stops (which you should make very often) be long or short, as may be judged necessary.

Another reason for making frequent stops is, that they serve as a correction to horses that abandon themselves, force the hand, or bear too much upon it in their trot.

There are some horses that are supple in their shoulders; but, nevertheless, abandon themselves: this fault is occasioned by the rider's having held his bridle-hand too tight in working them upon large circles; to remedy this, trot them upon one line, or tread, and very large; stop them often, keeping back your body and outward leg, in order to make them bend and play their haunches. The principal effects, therefore, of the trot, are to make a horse light and active, and to give him a just appui. In reality, in this action he is always supported on one side by one of his fore-legs, and on the other, by one of his hind-legs. Hence, the fore and hind parts being equally supported crosswise, the rider cannot fail of suppling and loosening his limbs, and fixing his head; but if the trot disposes, and prepares the spirits and motions of a sinewy and active horse for the justest lessons, and calls out, and unfolds the powers of the animal, which before were buried and shut up in the stiffness of his joints and limbs; if this first exercise to which the horse is put, be the foundation of all the different airs and manages, it ought to be given in proportion to the strength and vigor of the horse. To judge of this, we must go further than mere outward appearances. A horse may be but weak in the loins, and yet execute some air, and accompany it with vigor, as long as his strength is united and entire; but if he becomes disunited, by having been worked beyond his ability in the trot, he will then faulter in his air, and perform it without vigor or grace. There are, also, some horses that are very strong in the loins, but are weak in their limbs; these are apt to retain themselves, they bend and sink in the trot, and go as if they were afraid of hurting their shoulders, their legs, or feet. This irresolution proceeds only from a natural sense they have of their weakness. This kind of horse should not be too much exercised in the trot, nor have sharp correction; their shoulders, legs, or hocks, would be weakened and injured, so that learning in a little time to hang back, and abandon themselves on the appui, they would never be able to furnish any air with vigor and justness.

Every lesson, therefore, should be well weighed. The only method by which success can be insured, is the discretion you use in giving them, in proportion to the strength of the horse, and from your sagacity in deciding upon what air or manage is most pro-

per for him, to which you may be directed by observing what seems most suited to his inclination and capacity. For after all, much must depend on the shape and muscular powers of the animal, as may be seen by comparing the different action of a number of colts in a field, which have never been handled or broke. Some will move with the greatest ease and pliancy, being well balanced on their centre, and bending their hocks and knees in the most graceful and elactic style imaginable, whilst others throw all their weight on their fore-legs, go near the ground, and drag their hind-legs after them, as if they had no joint in their hocks. Good riding may somewhat improve these defects, but it can never produce what has been originally denied by the nature and conformation of the animal. Horses of this description may do very well for the purposes of draught, but can seldom or ever be rendered pleasant for the saddle.

ON THE PROPER MODE OF PLACING A MAN ON HORSEBACK.

In performing this, as well as in every thing else, there can be but two methods; the one, right; the other, wrong. It is true, that we see daily a great variety in the posture and seats of different riders; each, perhaps, thinking his own plan the best.

We see, also, the same variety in walking; and, although the clown may walk as fast, and as many miles in the day as the gentleman, yet it does not follow from thence, that his is the best mode of carrying himself.

That system of riding must not only be the most graceful, but also the easiest, which is executed with the least violence of gesture or unnecessary action.

A spectator in Hyde-park, or in any of our public roads round the metropolis, may find an ample fund of amusement in witnessing the various attitudes and motions of certain gentlemen, who seem desirous of going faster than their horses. Some of these embellish their labours by raising and sinking their shoulders alternately, every time they rise or drop in the saddle, in conformity with the horse's motion. Others, again, have the elegant accomplishment of throwing out their elbows sideways, in imitation of the flapping of a pair of wings, whilst others have the no less interesting manœuvre, of moving their whip hand in a circular motion round their hips from the back of the saddle to the pummell, very much resembling a

man using a hand-saw. Nor are the legs idle during this performance, as may be seen by their constant see-sawing from the shoulders of the horse to the flank, and so *vice versa*.

To those who ride for the purpose of exercise, all these manœuvres, no doubt, are of great advantage; as those who practise them may, with some truth, be said both to ride and walk at the same time.

As variety, however, is considered as absolutely essential to the gratifications of our existence, we are certainly much obliged to the above-mentioned gentlemen for laboring so hard to furnish their quota to the general stock, and after humbly submitting to their attention what was considered the true system of equitation by certain old-fashioned horsemen, such as Xenophon, the Duke of Newcastle, Sir Sydney Meadows, and one or two more of that school, it will be left to them either to pursue their own ideas on the subject, or to change them as they may deem most expedient, either to their dignity or their happiness.

That the horse was created for the purpose of carrying man, is sufficiently manifest from his form and natural properties.

In that part of the jaw where the bit belonging to the bridle is placed, there are no teeth to prevent its action on the bars of the mouth. The back of the animal is also slightly concave from the withers to the loins, whereby the seat of the rider, when placed on the bare back without a saddle, naturally falls into the centre as the lowest part. The fore-part of the body, next the shoulders, is the narrowest, gradually increasing in width towards the flanks. This conformation, also, has its use, as it prevents the rider from slipping backwards whilst the horse is in motion, which must have been the case had the fore-part of the body been the widest. It is evident, therefore, that the best and surest seat is that which accords the nearest with the natural shape of the horse. Those parts of the rider which come more immediately into contact with the body of the horse, are the buttocks, the inside of the thighs, the knees, and the calves of the legs; and it must be obvious, that the broader the surface of those parts that come close to the horse's back and sides, the more hold the rider will have, and the firmer he will be in his seat. Now, the broadest part of the inside of the thigh is what is called the hollow, and this is the part which should be applied to the horse's sides. But the common mode of riding, or what is called the jockey-seat, prevents the application of this part. The proper method, however, of effecting this object is for the rider to sit as low in his fork as he can, without uneasiness to himself. Having taken this position, the next thing to be observed is, that the loins should be rather hollow, but not so much as to occasion rigidity; the arms should be close to the body, and the head erect, but not stiff. The rider sitting thus low in his seat, the hollow of the thigh may be applied to the horse's side from the fork down to the knee, by turning the knee inwards. The leg should hang perfectly easy, with the toe pointing straight forwards and downwards. The toe should also come in a perpendicular line immediately under the knee.

This is the natural position of a man on the bare back of a horse. When the rider

is thus placed, he should keep all the muscles of his body, and his legs and thighs perfectly easy and relaxed; because, by so doing, he comes closer to his horse, and becomes, as it were, a part of the animal. But the moment he contracts the muscles of his legs and thighs, they become round and hard, and, consequently, a much smaller part of their surface comes into contact with the horse's sides; whereby he loses much of the hold he would otherwise have. So long as the toe is pointed downwards, this contraction of the muscles cannot take place, but the moment the toe is raised, the contraction ensues. It is true, that when the rider is mounted on a saddle with stirrups, it would be improper for the toe to point downwards; because, in that case, he would be constantly losing his stirrup. In that case, therefore, the toe must be elevated, but there is this difference between its being raised and held up without the stirrup, and with; namely, that, in the first instance, the toe is held up by the action and contraction of the muscles of the leg and thigh; whereas, in the latter case, by its being supported by the stirrup, no contraction in the muscles is necessary.

The late Earl of Pembroke makes some very judicious observations on this subject: he says, "Among the various methods that are used of placing people on horseback, few are directed by reason. Some insist, that scarce any pressure at all should be upon the backside; others would have the seat be almost on the back-bone. Out of these two contrary, and equally ridiculous methods, an excellent one may be found by taking the medium.

The backside of the rider should not only sit as close as possible to the back of the horse, but should remain immoveable, and, as it were, a part of the animal, and all motion of the body upwards should be confined to the loins. When this kind of seat is well preserved, the body of the rider appears as if it was fixed to the saddle by a hinge, the whole of it remaining stationary, whilst the fore and hind-quarters of the horse move upwards and downwards alternately, the centre of the back being the centre of motion. When this is performed without stiffness or constraint, the appearance of the rider is both easy and graceful. This ease and pliability in the rider is similar to that evinced by a coachman on a coach-box, who, instead of sitting stiff, and endeavouring to hold on by resisting the shaking of the box, yields his body to the motion, and receives the shock in an oblique direction, instead of a perpendicular one, by which its violence is much reduced.

The rider, being thus placed on the back of a quiet horse, the next thing to be observed, is the proper position of his hands and arms; for this is as necessary to be attended to as the position of the legs and feet. The hands and lower part of the arms should be kept in an horizontal line with the elbow. The fingers should be bent so as the nails may turn inwards, towards the body, the thumb being uppermost. The wrist should be a little bent, so as to bring the hand exactly over the pummel of the saddle. The elbows should not be kept too close to the sides, but should be about two inches distant, so as to admit of a free and unrestrained motion if necessary. In regard to bridles, a single rein or snaffle is the best to begin with.

The rein should pass from the horse's mouth, between the third and fourth finger, and from thence across the inside of the hand back again, over the first finger, where it should be pressed upon by the thumb. In this position, the bridle may be held firmly, so as not to slip through the hand. The next thing to be attended to, is, to take care that the reins be held neither too long nor too short. If they are held too long, the rider can have little or no command of his horse, as he must move his elbows backwards before he can pull against him, in which case he would lose a great deal of the strength of his arms. If, on the other hand, the reins be held too short, the horse, if he be tender-mouthed, might be apt to run back, to the great discomposure of an inexperienced rider. The reins, therefore, should be held in such a manner as to be moderately slack, so as to admit of their being tightened by a very small motion of the hand backwards, towards the body. As soon as the reins are properly placed in the rider's hands, the horse may be led forwards by some person on foot, but it should not be faster than a walk. As soon as the horse is in motion, the riding-master should watch the position of the rider, so as to take care that he does not raise his knees and grasp the horse's sides, which novices are very apt to do, by way of security. In this case, all the equilibrium or ballance of the body would be destroyed, as well as all pliancy and elasticity. The best proof of his sitting easy and properly, is when his seat goes along with the horse without rising from the horse's back, with the knees turned inwards, so as the hollow of the thighs shall be applied to the horse's sides, and, at the same time, the toe should point downwards, by which means only, the muscles can be kept in a relaxed and flaccid state. After the horse has walked a few times round the school to the right, he should be turned the opposite, and walked to the left. This lesson in the walk should be repeated three or four times before the horse is permitted to go into the trot, but as soon as the rider has acquired the habit of sitting easy and unconstrained, he may venture on the trot. The first lesson in the trot should, of course be as gentle as possible, for if it be too rough, it is impossible for an inexperienced rider to keep his seat, and, in endeavouring to do so, he acquires all sorts of bad habits, such as raising his knees, clinging to his horse, by grasping his sides with his legs, as well as by the throwing his body forwards; thereby putting him out of that perpendicular direction which is necessary to preserve the just equilibrium of his body. Great care, therefore, should be taken, that the rider keeps his shoulders and the upper part of his body backwards, for, by this means, he will be less shaken than if he were to lean forwards, as well as giving him a better command of the bridle.

In the trot, as well as the walk, the horse should go both to the right hand and to the left, alternately. The trot is the best lesson that can be given to a rider for the purpose of acquiring a secure seat, for the man who can sit a rough-trotting horse easy and unembarrased, may ride any other pace with the greatest facility. The canter and the gallop occasion much less concussion than any other pace. In the gallop, the rider

should keep down in his seat, and not throw his backside upwards at every motion of the horse, which is both ungraceful and insecure. As soon as the rider has acquired a pretty firm seat in all these paces on the bare back, he may be allowed to use a saddle, but for the first three or four lessons without stirrups. He may then proceed to the use of stirrups. The first thing then to be determined, is the proper length of the stirrup-leathers, and this may be done in the following manner: Thus, when the rider is mounted properly on the saddle, and well down in his seat, he should put his feet into the stirrups, which should be of such a length that, when pressing on the ball of the foot, the toes may be about two or three inches higher than the heels. If the stirrup-leathers be longer than this, the rider, by being able to press upon the stirrup-iron only with his toe pointed downwards, will be constantly losing his hold of it, and it will, thereby, be rendered useless. The best mode of ascertaining the proper length is by the following method: Make the rider sit down close on his saddle, with his legs hanging down, and the stirrups likewise, and when he is in this position, raise the rider's toe to an equal height with his heel, and shorten the stirrup-leather till the bottom of the stirrup-iron comes just under the ankle-bone. Both stirrups should be of an equal length.

The rider should not bear upon the stirrups, but only let the natural weight of his legs rest upon them, for if he bore upon themhe would be raised above, and out of the saddle.

The stirrup-iron, as has been before observed, should be placed under the ball of the foot. By this means, the rider will have the free and perfect use of his ankle-joint, which, together with the knee and hip-joints, forms a kind of spring, or elastic vibration, whereby, the concussion arising from the motion of the horse (particularly in trotting) is much reduced.

In what is called the jockey-seat, however, the foot is pushed into the stirrup, as far as it will go, up to the instep. In this position of the foot, the play of the ankle-joint is lost entirely, and, consequently, a considerable portion of the elasticity of the leg and thigh is lost also.

The rider having been properly instructed as to the right seat on the saddle, it becomes necessary that he should also learn how to mount and dismount with ease and grace. This may be done in the following manner: First, let the rider place himself nearly opposite the near or left shoulder of his horse, then let him take up the reins at their full length with his right-hand, and place them properly in the left. As soon as this is done, he may take hold of a portion of the mane just above the withers, with his left-hand, which, also, holds the bridle, and passing his right to the stirrup-iron, he may hold it whilst he places his left foot into it, which should be done at the ball of the foot, and not too near the toe, for fear of its slipping out again. His foot being in the stirrup, the right-hand should then be passed to the back part of the saddle, which, having taken firm hold of, he should rise steadily from the ground, and throwing his right leg over the horse's croupe, place himself in the centre of the saddle. But as the facility of mounting depends greatly on the manner of holding the body, and of passing the right-leg over the horse's back, it is necessary that the rider

should recollect to keep his body perfectly upright whilst he is rising from the ground; for, if he bends over the saddle whilst he is rising, he loses his ballance, and, becoming wavering and unsteady, he has no command of his right-leg; and, consequently, finds great difficulty in throwing it over to the other side. The best way is to perform the act of mounting at two motions, that is, to pause a moment at the time the rider is up in the stirrup before he throws over his leg, which should constitute the second motion. In throwing over the leg, care should be taken to bend the knee, and to keep the toes rather lower than the heel; for if the heel is lowest, there is a risk of pricking the horse's rump with the spur as the leg passes over, and which might prove a very dangerous event with an irritable or high-mettled horse, by making him start or kick before the rider is well in his seat, so as to have any command of the bridle.

In dismounting, the same precautions are to be observed as in mounting.

It is entertaining to see the difficulty that some aukward riders experience in mounting, when after many efforts and springs from the ground, they are either obliged to come down again, or else, by too great exertion, and bending over their bodies, they are in danger of pitching over, head foremost, on the opposite side. Butler has thus humourously described Hudibras in the act of mounting.

> With many desperate strives and heaves
> He got up to his saddle eves,
> From whence he vaulted into th' seat
> With so much vigour, strength, and heat,
> That he had almost tumbled over
> With his own weight, but did recover.

Now all this difficulty arises solely from not taking the trouble to learn how to hold the body; for, certainly, it is as easy to rise from the ground with the body in an upright position, as it is in any other; and, after a little attention to it, the rider will become so confirmed in the proper method as to render it almost impossible to forget it. Every horse should be taught to stand perfectly still until the rider is mounted and settled in his seat. This may be done even with the most spirited and impetuous horse, provided the rider has but patience. For want of this, fatal accidents have occurred from horses rearing, or running away, before the rider had got into his seat. One cause of this impatience in the horse arises from the rider pushing the toe of that foot which he puts into the stirrup against the horse's side, and which the animal mistakes for a signal to go on. If the horse is restless, it sometimes proceeds from the rider holding the curb-rein too tight while he is mounting. But, in this case, it is very improper to check him suddenly, by jerking the bridle, or by speaking roughly to him, both which practices only serve to frighten him, and to render him more irritable. It also happens, sometimes, that the groom, or some other person who holds the horse, holds him by the reins, and checks him, to prevent him from moving forwards; this is, also, a bad practice. The proper way for a groom to hold a horse whilst he is being mounted is by the check of the bridle, whereby he leaves the reins quite at liberty to the rider. If the horse is restless, let the person who mounts not rise in the stirrup until he stands perfectly steady. It is a good way with such horses to rise in the stirrup, and stand upright for a few moments,

without throwing the right leg over, and then to descend again on the ground. By repeating this movement, and cherishing and encouraging the horse at intervals, he may soon be brought to stand quietly.

Grooms and others are very apt to spur a horse the moment they are on his back. This is a very bad practice, and is sure to render the animal restless and impatient to start, as he naturally expects the spur the moment the rider is mounted. As soon as the rider is mounted, he should take care that he holds his reins properly, and not too tight. A tight rein always deadens a horse's mouth, and always makes an eager horse the more impetuous. The reins should be held exactly such a length as to feel the horse's mouth gently; the hand neither too high nor too low, but about three inches above the pommel of the saddle. When the reins are held rather slack, it gives a horse sufficient liberty in his head and neck, and also in his shoulders, for no horse that is held with a tight rein, can have the free use of his fore-quarters. When held gently, the horse walks away airily and pleasantly, nodding his head, and playing with the bit, and seems to be pleased with his employment. But a Newmarket jockey fancies that a horse cannot move a yard except he is held with a tight rein, and this is one cause why thoroughbred horses go so near the ground, and stumble so frequently.

When the horse is in the trot, it is usual to lessen the concussion, by what is called rising in the trot; that is to say, the rider rises in the stirrup, and drops again on the saddle alternately, between every motion of the horse; this, when it is steadily performed, gives ease both to the horse and the rider, but when it is performed with the rider's legs swinging backwards and forwards from shoulder to flank, or else swinging out and in sideways, it greatly incommodes the animal, and is, (although the rider is not always aware of it), a great addition to the fatigue of riding. The proper method is to keep the legs still and quiet as in the walk, and to rise gently in the stirrup, and if the rider presses on the ball of the foot, he will have the advantage of a spring in the ankle-joint as well as in the knee and hip; in which case, he will not have occasion to rise so high from his saddle as if he rode what is called home; that is to say, with his foot thrust up in the stirrup-iron as high as the instep.

The consequence of riding with the foot home in the stirrup is, that the elasticity of the ankle-joint is lost, and, on that account, one of the springs by which the weight of the body is supported in the stirrups is lost also, hence the concussion is increased. The toe, as has been before observed, should be placed in a perpendicular line with the knee. In this position the rider is obliged to sit well down on his fork, or as the French term it, "*enfoncer la derriere,*" it also enables him to raise himself from the saddle, if necessary, with greater ease and less difficulty than if the foot was placed farther forward, that is to say, beyond the line of the knee; because, in that position, the pressure of the foot against the stirrup has the effect of constantly forcing the rider backwards on the saddle, and, consequently, pushing him out of his seat; and if he has occasion to rise in the trot, he must do it with double labour, because the point of support being so far beyond the centre of gravity, he will have to rise in opposition to the obliquity of his

own body; and, therefore, with less ease than if the foot was more immediately under him. The whole weight of the rider should be on the saddle. The rider should not press upon the stirrups more than is necessary to prevent his feet from slipping out of them. A horse will carry his burthen much easier when it is concentrated on his back, than when it is removed down to the line of his belly. This is the reason why tall men, who ride with long stirrups, are supposed to ride heavier than shorter men of the same weight. This opinion, however, as far as it regards the actual weight of the rider is erroneous; because, in reality, the weight can neither be increased nor diminished by this circumstance; but if a tall man bears principally on the stirrups, and throws his legs backwards and forwards, or uses any other unsteady motion, he, thereby, incommodes his horse, and renders it more difficult for him to carry his rider; and, in this case, and this only, a tall man is less easy to carry than a short one of the same weight.

One of the best jockeys that ever rode at Newmarket was above six feet high: it is true he was extremely thin and small boned, and, of course, was able to ride the same weights as others; but his seat was so steady, and his hand so good, that although there was considerable prejudice against him on account of his height, still he was constantly employed, even by those who entertained those prejudices.

The difficulty, therefore, which the horse experiences in carrying his rider, does not depend so much on the weight as on the steadiness with which the rider preserves his seat; for the more the man and horse are of a piece as it were, the less the horse will be disturbed in his own motion. The thighs and legs of the rider should be as motionless as possible; they should seem, in fact, as if they were part of the animal. But this is not to be accomplished by grasping the saddle with the thighs and knees, but by applying the surfaces of them regularly and steadily in every part. All motion in the rider should begin above the hips, and this should be very trifling, and it is this ease and pliancy in the loins that leaves all the parts below firm and immoveable. But no rider can keep in his seat if his loins and back be hard and inflexible, because the same stiffness is communicated and carried on to the hips, thighs, and legs, and renders the rider more liable to be shaken by every motion or jerk of the horse. The same argument holds good with a man riding on a coach-box over a rough road; for if he sits hard and stiff in his body, and attempts to keep his seat by clinging to the box, either with his legs or hands, he will be much more shaken and bruised than if he were to sit perfectly loose and easy, yielding to every motion without resistance in any part of his frame.

Lord Pembroke justly observes, "the absurdity of putting a man who has never, perhaps, been before on a horse, or if he has, 'tis probably so much the worse, on a rough trotting horse, supposing the horse is insensible enough to suffer it, and if he be not, the man runs a great risk of breaking his neck, to stick with all the force of his arms and legs, is too obvious to need mentioning. This rough work all at once is plainly as detrimental at first, as it is excellent afterwards, in proper time. No man can be either well, or firmly seated on horseback, unless he be the master of the ballance of his body,

quite unconstrained, with a full possession of himself, and at his ease on all occasions whatever; none of which requisites can he enjoy, if his attention be otherwise engaged, as it must wholly be in a raw, unsuppled, and unprepared lad who is put at once upon a rough horse. In such a distressful state, he is forced to keep himself on at any rate, by holding to the bridle, (at the expence of the sensibility both of his own hand and the horse's mouth,) and by clinging with his legs, in danger of his life, and to the certain deprivation of a right feeling in the horse, a thing absolutely necessary to be kept delicate, for the forming properly both of man and horse, not to mention the horrid appearance of such a figure, rendered totally incapable of use and action. The first time a man is put on horseback, it should be on a very gentle one; he never should be made to trot till he is quite easy in the walk, and then on very easy horses at first; afterwards, as he grows firmer, put him on rougher horses, and increase by degrees the velocity of the trot. He should not gallop till he can trot well; because, though the motion of the gallop is the easiest, a horse may be more easily unsettled in galloping than in trotting. The same should be observed in regard to horses; they should never be made to trot till they are obedient, and their mouths are well formed on a walk; nor be made to gallop till the same be effected on a trot.

When the rider is arrived at such a degree of firmness in his seat, the more he trots, and the more he rides rough horses the better. This is not only the best method, but also the easiest and the shortest; by it, a man is soon made sufficiently a horseman for a soldier; but by the other foolish methods that are commonly used, a man, instead of improving, contracts all sorts of bad habits, and rides worse and worse every day; and the horse he rides becomes also daily more and more unfit for use. In proceeding according to the manner proposed, a man is rendered firm and easy upon the horse, and, as it were, of a piece with him; both his own and the horse's sensibility is preserved, and each in a situation fit to receive and practise all lessons effectually; for if the man and horse do not both work without difficulty and constraint, the more they are exercised the worse they become; every thing they do is void of all grace and of all use.

When the man has acquired a perfect firmness on the saddle, he should, by degrees, be made equally firm on a rug, or on a horse's bare back, so much so as to be as firm, to work as well, and be quite as much at his ease, as on any demipique saddle. In all cases, therefore, without exception, but more especially in this, great care must be taken to hinder their clinging with their legs; in short, no sticking by hands or legs is ever to be allowed at any time. If the motion of the horse be too rough, slacken it, till the rider grows by degrees more firm, and when he is quite easy and firm on his horse, in every kind of motion, stirrups may be given him, but he must never leave off trotting often, and working often, without any.

The impropriety of depending too much on the stirrups is manifest, for the following reasons: in the first place, if the stirrup-leather happens to break on either side whilst the rider is bearing on his stirrups, he must inevitably fall from his horse on that side on which the leather breaks, from the support being suddenly and unexpectedly taken

away from his foot. In battle, also, a stirrup-leather may be cut in two by the stroke of an adversary's sword, and the same consequences as just mentioned may ensue; but if the rider be bearing on the saddle instead of the stirrups, no disturbance of his seat can take place from the breaking of a stirrup-leather; and this proves the necessity of not depending on the stirrups for safety.

Whenever the rider presses much on the stirrups he weakens his attachment to the upper part of the saddle; and, consequently, sits less firm in his seat: this is occasioned by his breech being thrown upwards upon the cantril of the saddle, by the action of his feet on the stirrups. In order to recover his position in the centre of the saddle, he should open his knees, by which means he will descend again into the proper place.

No rider, who depends on his stirrups for security, can be a firm and good horseman. The best riders, perhaps, in the world, are the horse-dealer's men, who shew horses at the country fairs; many of these will jump upon a colt bare-backed, and one that very likely never had a man on his back more than two or three times before, and ride him with only a halter in his mouth in spite of all attempts to throw them off. In these cases, there are no stirrups to depend upon for safety: but the rider does not keep his seat by sticking and grasping the horse's sides with his knees, as is erroneously supposed, but by the most perfect ease and elasticity in his loins, whereby his body yields and accompanies the motion of the horse. Indeed, the action of grasping the horse's sides with the knees and legs only tends to loosen the seat of the rider: because, the body of the horse growing narrower as it approaches the shoulders, the more the rider grasps, the more he is drawn forwards upon the horse's withers, where the seat becomes narrower, and where, of course, he must have less hold.

The proper seat on horseback, which has been described in a former part of this chapter, may be considered as the best adapted for the road, for the army, or the chase. Still there are many who contend that the Newmarket, or jockey-seat, is the best. In this seat the knees are raised, and the legs are placed rather forward, with the foot home in the stirrup, sitting in the same posture as if the rider was placed in a chair. In this position, scarcely any of the hollow part of the thigh is applied to the saddle, the principal hold, therefore, depends on the knee and the calf the leg. To counterbalance this protrusion of the legs forwards, the rider, in the jockey style, holds hard by the bridle, as he invariably teaches his horse to pull against him, by always riding with a tight rein. It is true, that riders of this description stick on to their horses by habit, and it may, perhaps, be argued, that, if their own method answers their purpose, there is no necessity to change it. But a system is not always likely to be the most true, because it is the most ancient, and those who are determined never to try any other but their own, of course cannot be considered as impartial or correct judges, because they can have no opportunity of making any comparison between their own method and and that of others. A Newmarket jockey fancies that a horse cannot gallop a yard except he pulls hard against the hand of the rider, and this may be true in regard to an

old racer; but this arises entirely from the horse having been taught to do so, and not from any natural inclination of the animal.

In the jockey-seat, when the rider sits with his knees high, in consequence of riding with short stirrups, his breech is thrown backwards and upwards on the cantril of the saddle; and, in this position, when the horse gallops, the motion of the animal throws him upwards from the saddle at every stroke. To obviate this inconvenience, he is obliged to stand up in the stirrups during the gallop, and in order to preserve his ballance, he is forced to lean his body forwards over the horse's withers, whilst his hands are holding hard by the bridle on each side. In this position, if a stirrup-leather happens to break, the rider must inevitably fall.

The standing up in the stirrups certainly gives ease to the horse, as well as the rider, during the gallop, provided it be done very steadily, and without any wavering of the legs backwards or forwards; but when it is done in an awkward, unsettled manner, it only tends to incommode the horse, and to disturb him in his going. The jockey-seat, therefore, so far as it relates to galloping in a race, may be very proper for that particular purpose; but this is no reason why it should be the best for common riding; and one reason, perhaps, why it is so generally adopted, arises from the affectation of imitating what is considered as the only stylish mode of horsemanship amongst the *knowing*.

The author is aware that some part of this doctrine will be treated with great contempt by that class of horsemen who fancy they have nothing to learn, especially as he confesses that he has never signalised himself either at Newmarket or any other course in the kingdom. But as the best treatise upon naval tactics that ever was published was written by a man who never was at sea, it is equally possible, that good and well-founded principles of horsemanship may be set forth by a man who has never ridden for the king's plate, or any sweepstakes whatever.

The next point to be considered, is the proper use of the hands, and this, indeed, is the true touchstone of all good horsemanship. Delicacy in the use of the legs may be given by the teacher to a certain degree, but it is nature alone that can bestow that great sensibility, without which, neither one nor the other can be formed to any great perfection. The hand should be firm, but delicate. A horse's mouth should never be surprised by any sudden transition or jerk. The way that horses acquire that bad habit of bearing on the hand, arises from the want of a proper sensibility in the rider. Hence it generally happens, that the harder you pull against a horse of this description the faster he will go; so that the action which should be the signal to stop him, or to moderate his pace, has the direct opposite effect. This bad effect is produced also in a great measure by the rider first tightening his rein before he urges the horse to quicken his pace. When this has been repeated a few times, the horse expects, whenever you begin to pull the rein tight, either the whip or spur; and, consequently, he sets off immediately with the hope of avoiding it.

Before mounting, every horseman should examine his bridle, to ascertain that it is put on properly. The snaffle-bit should always be uppermost, above the curb, whether the

snaffle be used separately, or whether they be both used together. When the rider knows enough, and the horse is sufficiently prepared and settled to begin any work toward suppling, one rein must be shortened according to the side worked to, if moving on a circle, but it must never be so much shortened as to make the whole strength rest on that rein alone; for, independently of the work being false and bad, one side of the horse's mouth would, by that means, be always deadened; whereas, on the contrary, it should always be kept fresh by its own play, and by the help of the opposite reins, acting delicately in a smaller degree of tension, the joint effects of which produce, in a horse's mouth, the proper, gentle, and easy degree of appui or bearing.

The foregoing observations contain all that is necessary for the proper placing of the rider on the horse's back, as well as the proper method of adjusting and holding his bridle. But as horses differ in their tempers and dispositions, as well as in their manner of going, it becomes necessary to give such instructions to the rider as may prepare him to surmount any difficulties that may arise from those circumstances.

In the first place, there are few young horses but what are apt to be frightened at strange noises, or unusual sights, and the consequence, generally, is their refusing to pass by them without some trouble and even danger to the rider. This habit of shyness at objects on the road, proceeds very frequently from defective sight, and is very common to horses that either have very large and full, or very small eyes, in either of which cases, the animal must naturally be near-sighted. The common method used by bad and intemperate horsemen, is to urge and force the horse up to the object, by using both whip and spur. This is, undoubtedly, a very bad practice, although a very common one, and only renders the horse more troublesome, as he then has not only the dread of the object acting upon him, but also that of the whip and spur.

Bourgelat, in his treatise, says, "quarreling with horses, plaguing, or beating them, as one often sees done, not only spoils both their tempers and their paces, but it teaches them to trip, stumble, fall, start, run away, and to be unsteady and vicious; whilst gentleness and coolness would very soon bring them to go through or over any bad place whatever, with ease, good humour, and safety. Beat a horse for tripping, or such a kind of thing, and he will soon do it again through fear and hurry. Such failures sometimes proceed from weakness. In that case, proper food, and gentle exercise, by restoring the animal to health and vigour, will cure him of them. If they arise from inattention, or from the badness of his paces, he must have a good rider to render him attentive, and mend his movements. All other remedies will prove fruitless, but these will not, unless some natural defects or acquired hurts, such as lameness, or bad weakening distempers, interfere."

The rider may easily discover when his horse is about to shy at any object on the road, as the animal generally turns his head towards it, and points his ears forwards. As soon as the rider perceives this, he should prepare himself for the horse's suddenly springing sideways to that side of the road

which is most remote from the object, or else turning quite round, by grasping with the leg and thigh on the same side as the horse is inclined to turn. This will prevent him from falling off on the opposite side. In cases like this, the rider should take a rein in each hand, which will give him more command over the horse than if the reins were held by one hand only. But he should not use any violence by jerking his hand, or pulling hard to either side, and it often happens, that a shy horse will pass a strange object without fear, when his bridle is loose, and his head at liberty; whilst, on the contrary, if the rider tightens his rein, and holds the horse's head towards the object before he approaches it, the animal becomes alarmed by the constraint of his head by the bridle, from the natural apprehension that he shall not be able to escape from the danger with which he conceives himself to be threatened.

It is, therefore, a very bad practice to force a horse up to an object with violence, and it is certain, that no horse was ever yet broke from shyness by such means. It is proper, if it can be done with gentleness, to ride a shy horse up to the object, and to allow him to examine it, or smell it, which, in general, will reconcile him to it without any further trouble; but if he is forced up to it by whipping and spurring, his attention is wholly occupied by the fear of chastisement, and he is thereby prevented from examining it coolly and quietly.

It is impossible, in general, to be too circumspect in lessons of all kinds, in aids, chastisements, or caresses, for as the Duke of Newcastle, in his treatise on equitation, observes, "If any man was in the form of a horse, he could not invent with more art than some horses do schemes to oppose what is required of him. Some have quicker parts, and more cunning, than others, many will imperceptibly gain a little every day on their rider. Various, in short, are their dispositions and capacities. It is the rider's business to find out their different qualities, and to make them sensible how much he loves them, and desires to be loved by them; but, at the same time, that he does not fear them, and will be master. Correction, according as it is used, throws a horse into more or less violent action, which, if he be weak, he cannot support, but a vicious strong horse is to be considered in a very different light, being able both to undergo, and consequently to profit by all lessons, and is in every respect far preferable to the best natured weak one upon earth.

Patience and science are never-failing means to reclaim a wicked horse in whatsoever manner he defends himself, and to bring him back frequently with gentleness, but with firmness too, to the lesson which he seems most averse to. Horses are by degrees made obedient through the hope of recompence, and the fear of punishment; how to mix these two motives judiciously together is a very difficult matter, not easy to be prescribed; it requires much thought and practice, and not only a good heart, but a good head likewise. The coolest and best-natured rider will always succeed the best. By a dexterous use of the incitement above mentioned, you will gradually bring the horse to temper and obedience; more force, and want of skill, and of coolness, would only tend to confirm in bad tricks, and a

horse broken in to carry a rider by fear alone, cannot be said to be thoroughly broken, for whenever he has a rider on his back of a timorous disposition, he will be sure to take advantage of it, and to become his master.

If the horse be impatient and coleric, never strike him, unless he absolutely refuses to go forwards, which you must resolutely oblige him to do, and which will be of itself a correction, by preventing his having time to meditate, and put in execution any defence by retaining himself. Resistence in horses is sometimes a mark of strength and vigour, and proceeds from spirit, as well as sometimes from vice and weakness.

Weakness frequently drives horses into viciousness when any thing, wherein strength is necessary, is demanded of them. Great care, therefore, should always be taken to distinguish from which of these two causes, that are evidently so different, the defence arises, before any remedy or punishment is thought of. It may sometimes be a bad sign when horses do not at all defend themselves, and proceed from a sluggish disposition, a want of spirit, and a proper sensibility. Whenever one is so fortunate as to meet with a horse of just the right spirit, activity, delicacy of feeling, with strength and good nature, he cannot be cherished too much; for such a one is a rare and inestimable prize, and if properly treated will in a manner do every thing of himself. Horses are oftener spoilt by having too much done to them, and by attempts to dress them in too great a hurry, than by any other treatment.

If, after a horse has been well suppled, and there are no impediments, either natural or accidental, if he still persists to defend himself, chastisements then become necessary; but whenever this is the case they must not be frequent, but always firm, though always as little violent as possible; for they are both dangerous and prejudicial, when frequently or slightly played with, and still more so when used too violently.

When the rider quarrels with his horse, he is generally the dupe of his passion, and the fray commonly ends to his disadvantage. Whenever you see a man beating any animal, it is at least ten to one that the man is in the wrong, and the animal in the right. A good-natured clever man may with great ease teach a horse any thing, and it is a very mistaken notion that those horses which perform so many dextrous tricks at Astley's, and places of that description, are brought to execute them by violent means. The fact is, they are taught by gentle means only, and by rewarding them at the moment they obey; hence they become accustomed by habit to combine the recollection of the reward with the performance of the trick, and it becomes a pleasure to them instead of a labour.

Plunging is a common defence among restive and vicious horses. In this action the horse gets his head down towards the ground, and raising his back like an arch, he jumps violently two or three times in rapid succession, until he throws off his rider with great violence. This is a most difficult action for a rider to sit, because he loses all command of the horse's head by being thrown upwards out of his seat every time the horse plunges.

If the horse does it, and runs backwards at the same time, it is necessary to apply the

spurs vigorously, and to oblige him to go forwards, and at the same time to keep up his head by the bridle as high as possible, as no horse can kick whilst his head is held high.

If, on the other hand, he plunges whilst he is moving forwards, keep him back, and when he is become quiet, ride him slow and gently for a good while together, and back him gently every now and then.

Of all bad tempers and qualities in horses, those which are occasioned by harsh treatment and ignorant riders, which are very common, are the worst; whenever a horse makes resistance to any thing that is required of him, it is necessary, before any correction is used, to examine very carefully all the tackle about him, to ascertain whether any thing hurts or tickles him, or whether he has received any sudden injury

For want of this previous examination, many fatal, and sometimes irreparable, accidents occur; the poor dumb animal is frequently suspected wrongfully of being restive and vicious, and is consequently ill-treated both with whip and spur, and being thereby forced into a kind of frenzy, he becomes highly dangerous to his rider, be his natural temper and disposition ever so good.

It should constantly be remembered, that animals must be brought to obedience by gentle and slow degrees, in order that they may have time to reflect upon what is required of them. By degrees every thing may be accomplished with ease and safety. Animals of the domestic kind, particularly the horse, are (with some few exceptions) both docile and good tempered, and it is the fault of those who have the care of them, if they ever become otherwise.

A horse that is both vicious and weak is a very worthless animal, and not worth the expence of his maintenance. This is a circumstance that should be particularly attended to in all regiments of cavalry, for a horse of this description may not only endanger the life of his own rider, but may also be the cause of throwing a whole squadron into disorder.

Rearing is a bad vice, and in weak horses a very dangerous one, as the animal, in consequence of being unable to support himself on his hind legs, is in danger of falling over backwards.

Whilst the horse is up, the rider should yield his hand and throw his body against the horse's neck, and when the horse is descending he should vigorously force him forwards by applying the spurs to his sides smartly. But care should be taken not to do this until the animal is descending, because it might have the opposite effect, of adding a spring to his rearing, and might make him fall backwards. With a good rider, horses seldom persist in this vice. It shews itself principally with a horse that is tender-mouthed. It is therefore necessary to examine the bridle to see that the curb-chain be not linked too tight. It is a good method with horses that persist in this vice, for the rider to carry an oil-flask filled with water, and when the horse rises up on his hind-legs to break the flask on his head, so that the water may run into his ears. This will cause him to drop his head, and to shake his ears, and consequently make him descend again, and if it be repeated once or twice it seldom fails of affecting a cure.

To qualify military horses for service, much more instruction is necessary than for

common riding, as it is essential to teach them to stand fire, to bear the noise of drums, and, indeed, noises of every sort. In order to accomplish this, they must be used to it in the stable at feeding time. Thus, just before the horses are fed, two or three men should move slowly through the stable with a drum, trumpet, and a flag, and by beating the drum, and sounding the trumpet, and waving the flag immediately before the corn is thrown into the manger, and by constantly repeating this process every time the horses are fed, they will soon come to like to hear it, because they then know it to be the signal for feeding. The same means may be used to make them stand fire, by firing a pistol in the stable just before feeding. It is useful, also, to accustom military horses to objects on fire, and this may be done by keeping them still at a certain distance from some lighted straw. In that situation they should be caressed, and in proportion as their fright diminishes, let them approach gradually the burning straw, and increase the size of it. By this means they will soon be brought to be so familiar with it as to walk even through it without fear.

Lord Pembroke observes, "all troop-horses should be taught to stand quiet and still while they are shot off from; to stop the moment you present, and not to move after firing till they are required so to do. This lesson ought especially to be observed in light troops, and it should never be neglected in any kind of cavalry whatever; in short, the horses should be taught to be so cool and undisturbed as to suffer the riders to act upon them with the same freedom as if they were on foot. Patience, coolness, and temper, are the only means requisite for accomplishing this end.

The rider, when he fires, must be very attentive not to throw himself forwards too much, or otherwise derange himself in his seat. He should begin by walking the horse gently, then stop, and keep him from stirring for some time, so as to accustom him, by degrees, not to have the least idea of moving without its being the intention of the rider; if he does, he should be reined back, and when he is stopped again, and is quite still, the reins should be left quite loose, and he should be caressed.

To accustom a horse to fire-arms, a pistol, or a carbine, may be put in the manger with his corn; he should next be used to the sound of the lock and pan; after which, when he is mounted, shew the piece to him, presenting it forwards, sometimes on one side, sometimes on the other. When he is thus far reconciled, proceed to flash some gunpowder in the pan; after which, put a small charge into the piece, and so continue augmenting it by degrees, to the quantity which is commonly used; if he seems uneasy, walk him forwards a few steps slowly, and then stop, back, and move forwards, then stop again and caress him. Great care should be taken not to burn or singe the horse any where in firing, as he would remember it, and be very shy for a long time. Horses are often unsteady and alarmed at the clash and glittering of arms, at the drawing and returning of swords, all which they must be familiarised to by little and little, by frequency and gentleness. In going over rough and bad ground, the rider should hold his hand high, and his body back

All military horses, especially those of the light cavalry, should be taught to leap over ditches, hedges, &c. In first teaching a horse to leap, the fence should neither be very wide nor very high. When the horse is tractable under the first experiment, and improves, the height and width of the fence may be increased by degrees, because, if the leaps were increased too suddenly, the horse would be unprepared, and would most probably fall, which, so far from making him more careful, as some riders suppose, would only have the effect of making him fearful, and thence either make him refuse to leap again, or else induce him, from the apprehension of not clearing it, to run at it with hurry and confusion. In going at a leap, the reins should never be held tight, because the horse cannot rise, or have the free use of his shoulders and fore-legs, except his head be at perfect liberty. Many riders, however, have a notion that a horse's head should be a little held up by the bridle, with a view, as they term it, of assisting him, and directing him how to measure his leap. This is, however, a very mistaken notion, as many riders know to their cost, as it very often is the means of pulling the horse into a ditch. A horse will always learn how to measure his leap if left to himself, better than when the rider attempts to regulate his motion; because, if his head be held up and constrained by the bridle, he can neither see so well where he is going, nor can he have the free use of his shoulders and fore-legs, both of which are absolutely necessary to enable him to accomplish the leap with ease and safety. Sportsmen, in general, entertain a curious idea, that a horse can extend his leap if he discovers the ditch to be wider than he expected, by taking an additional spring whilst he is going over it. But this is certainly a very erroneous notion, for after the horse has once quitted the ground with his hind-legs, he can neither increase nor diminish the exertion or spring with which he began his leap, because no point of resistance remains for his hind-legs to spring from. If the animal were, like the poetical courser, Pegasus, furnished with wings, the air would, in that case, supply a point of resistance, and would afford him the means of increasing the momentum of his body; but our terrestrial nags must, inevitably, be restricted to the simple force of their hind-quarters during their short flights over hedges and ditches, and will still continue to give occasional proofs (by lying on their backs in the middle of a ditch) of the fallacy of the doctrine before mentioned.

The best way to begin to teach a horse to leap, is to lead him to a low bar covered with furze, which, pricking the horse's legs if he does not raise himself sufficiently, prevents his contracting a sluggish and dangerous habit of touching, as he goes over, which any thing yielding and not pricking would give him a custom of doing. Many horses in learning to leap are apt to come too near, and in a manner with their feet under the bar. The best way to prevent their doing so, is to place under the bar two planks, of the breadth of the pillars on which the leaping bar is fixed; These planks should meet and join at top under the bar, about two feet high from the ground, and project at bottom upon the ground, about two feet; they should be strongly framed, that the

horse may not break them by touching them with his feet; the bar should be placed so as to run round when touched. The ditches and hedges to which a horse is first brought should be small and inconsiderable, and in this, as in every thing else, the increase should be made by degrees. The horse should be accustomed to approach the object he is to leap, gently, and without hurry, and to stand coolly at it for some time, and then to raise himself gently up, and go clear over it without either laziness or impetuosity. When he has been taught to leap well standing, he may next be brought to walk up to the bar, and to go over it without halting, and after he has become a little familiar to this practice, he may be led up to it in a trot, and so by degrees quicker and quicker, until he is brought to leap it flying on a full gallop.

This last action, however, is the most difficult, and requires both energy and steadiness at the same time, for, a rash and impetuous horse is always in danger of running into his leaps, and thereby meeting with accidents. The fault generally arises from the animal not knowing when to rise, or to take his spring at a proper distance, and it is not a very easy matter for the rider to direct him, although many attempt to do it by the bridle; and hence it happens, not unfrequently, (especially with timid and irresolute riders,) that the horse is checked too soon by the reins, and, by springing before he is close enough to the object, is, consequently, pulled into the ditch. A horse, however, will soon learn how to measure his distances, after he has experienced one or two falls; and, on the whole, it is better to leave the matter to himself than to attempt to regulate him; because, some young horses, when once baulked at a leap, by being injudiciously restrained by the rider, can never after be brought to face a hedge and ditch without much trouble and difficulty.

In regard to the position of the rider in going over a leap, it is necessary that he should keep his body back; because, by so doing, a great deal of the shock is avoided. The motion of the horse is, in fact, similar to that of a rocking-horse; namely, he first rises with his fore parts, and ultimately with his hinder ones; therefore, if the rider projects his body forwards at that period of the leap, he must, inevitably, be thrown over his horse's head by the jerk which he receives from the hind-quarters. But, in leaning back, he should not disturb his previous position on the saddle, for the bend should be confined to the loins entirely. His arms should also remain still and close to his sides; and the best way to teach this, and to prevent their being raised up, is to oblige the rider to hold a switch, or a hand-whip, under each arm, and not to let them drop. The thighs and legs should be kept in the same position, without grasping the horse's sides, which only tends to render the shock more violent.

Having endeavoured to describe the proper seat of the rider on horseback during the action of leaping, it becomes necessary to make a few remarks on the qualities and properties which are necessary to the animal to make him a good leaper. As this action depends solely on the hind-quarters, as far as regards the spring, it must be obvious, that a sufficient degree of strength in those parts is absolutely necessary. A horse, therefore, whose loins are narrow and weak, or whose hocks and thighs are defective in substance, can never be expected to leap well, especi-

ally with any weight on his back. It will be fruitless, therefore, to urge the animal to execute what nature has denied him the means of accomplishing; or to punish him for the inevitable failure which must take place whenever he is forced to undertake a task beyond his powers. It is true that a natural activity in the animal is requisite for leaping, as well as muscular strength; still there is a particular shape in the hind-quarters which is more favorable to that action than to any other. It is also worthy of observation, that all animals that leap well have their hind-legs naturally inclining under the body; for instance, the deer, the goat the lion, the tyger, and all those of the cat kind; and the most remarkable instance will be found in the kangarou, whose leaps are almost incredible, and are such as to baffle the speed of the fleetest greyhound when pursuing them.

The Irish horses are generally good leapers, and these are commonly short in the hind-quarters, and down-rumped, or low in the croupe, with their hind-legs standing considerably under the body, and their hocks close together, being what is called cat-hammed.

About twenty-five years ago, an Irish horse (for a wager) leaped over the wall of Hyde-park, close to the gates at Hyde-park corner. The height of the wall on the side on which he rose was six feet, and on the other side, eight. The horse was about fifteen hands high, and shaped as has been just described, without any thing remarkable in his general appearance. He was led up to the wall till within the distance of half a dozen yards, when he was turned loose. In going over it, however, he knocked off a brick with his hind-leg, and a dispute arising from that circumstance, he was brought round again to the same place, when he cleared it in the most perfect manner at the second time of trial.

This leap, considering the great height of it, and its taking place over such a hard and unyielding substance as a brick wall, appears almost incredible, but the author can vouch for its being a fact, from having been an eye witness on the occasion.

The Irish horses are particularly well adapted for leaping, from the shape of their hind-quarters and hind-legs, which are generally placed much under the body. It is also very much the practice in Ireland to accustom them to leap stone walls, but they are not generally such good flying leapers as the better bred English hunters. The act of leaping during the chase, when the horse has been galloping for any length of time, is very distressing to the animal, and adds considerably to the difficulty of breathing; because, when the horse gathers himself on his hind-quarters, preparatory to taking the spring, all the muscles of the belly are in a state of violent contraction, so as to stop the action of the ribs, and to oblige the animal to hold his breath until he again alights on the ground; and this temporary suspension of the act of breathing is equal in its distressing effects to the galloping of half a mile; because, being constantly urged forwards without intermission, he has no opportunity of recovering his wind. Hence, horses are sometimes so blown as to be unable to rise at a leap, and heavy falls are the consequence.

The principal distress which hunting horses experience is during the first burst, when the hounds generally run at their greatest speed, but as soon as they begin to sweat, their breathing is relieved by the vessels of the skin becoming relaxed, and allowing a free circulation of the blood from the lungs to the surface of the body. It is prudent, therefore, if possible, to spare a horse until this perspiration takes place, after which, he will be better able to go through the chase than under other circumstances.

It is well known amongst boxers, that they have, what they call, "a second wind," and which is analagous to this second wind in horses, and is obtained in the same way, namely, by sweating. Hence it is generally observed, that they are more distressed for breath at the close of the first two or three rounds, than they are at any other period of the battle. It is true, they become more exhausted in proportion to the duration of the contest, but this is a mere exhaustion of muscular power from violent bodily exertion.

The labour which a hunting horse undergoes is excessive, and is very different from that which takes place on a road; for he is obliged to pass over all sorts of ground, and some so soft and deep as to allow him to sink half way up his legs at every stroke; added to which, his being obliged to carry a weight on his back, must greatly increase the hardship of his task. This proves the necessity of his being prepared by proper exercise, and good feeding, and cleaning, without which no horse, however good in nature, can possibly perform the work of a regular hunter.

The labours of the race-horse are more violent than those of the hunter, but they last for a shorter length of time; but the most excessive of all are those barbarous matches against time, that are made by the cruel and unfeeling owners of horses that they do not deserve to possess. These wagers are made, not for the satisfaction of showing the superior powers of the animal, but from the sordid motive of winning money; and, to obtain which, the poor victim of their avarice frequently falls a sacrifice.

A remarkable case of this kind occurred some years ago. A soap-boiler, at the west end of London, possessed a horse that used to work in his cart, and carry out small loads amongst his customers, and which horse he was accustomed to drive in a gig occasionally. By some accident or other, it was discovered that this horse was possessed of extraordinary speed and bottom, and a lawyer, who, in conjunction with his professional pursuits, carried on a little black-leg amusement, became the purchaser of this animal, and began to turn his powers to account as soon as possible. The first match which he made was to gallop nineteen miles within the hour, and the horse being, to all appearance, a heavy, half-bred, animal, and shewing no indications of speed in his external form, great odds were laid against his winning the wager. The horse, however, accomplished the task within the time, to the surprise and discomfiture of the knowing ones. Not satisfied with this performance, his owner matched him again, to go twenty miles within the hour, which he also accomplished; and, shortly after, he was again matched to go twenty-one, but dropped down dead before the conclusion of the last mile.

Since that period, many cases of equal brutality might be brought forward, all tending to shew the habitual barbarity of the inhabitants of this country, towards one of the noblest and most useful animals in the creation. This species of barbarity seems to be almost peculiar to this country; for, in no other, is the horse urged to extraordinary exertion, except in cases of actual necessity.

Those who travel by mail-coaches must have witnessed the cruelty practised in driving the horses that are employed to draw them. Every mail-coachman entertains the foolish notion that it is easier for the horses to trot up a hill than to walk up it, and when they arrive near the summit, they invariably force them on at a quicker rate, instead of allowing them a few moments for the recovery of their wind. If a passenger of any feeling and humanity attempts to remonstrate, he is immediately told by the coachman that he is obliged to keep his time; but, surely, the two or three minutes he might lose in walking up the hill might be easily regained on the level ground, and with much less injury to the horses.

It rarely happens that four horses in a mail-coach are matched so near as they ought to be, in regard to speed and wind; not to mention the circumstance of those which may happen to be diseased in their lungs, though in a trifling degree. If one of these inferior animals happens to be yoked with three others that are superior to him in those qualifications, the consequences of his being obliged to keep pace with them, at the utmost extent of his powers, must be distressing in the extreme. In this case, the proprietor sometimes neglects to remove him, and to replace him by another of a better description; and the coachman, in order to get rid of what he considers an incumbrance to the rest, takes every opportunity of forcing him beyond his wind and strength, in the hope of his dropping down dead on the road, and thereby being released from any further trouble with him. This brutal expedient is more frequently resorted to than is generally supposed, and it often has the desired effect.

The brutality of draymen and carmen in the streets of the metropolis is too notorious to have escaped the observation of bye-standers. Unfortunately for the interests of humanity, and the credit of our national character, it is too seldom noticed, nor are our laws upon that point sufficiently severe for the purposes of punishment. Lord Erskine, much to his honour, attempted some years ago to bring in a bill into parliament for the more effectual punishment of cruelty towards the brute creation; but the common cant about the liberty of the subject was raised in opposition, and his good intentions were unfortunately defeated. But surely Lord Erskine was a man whom no one, who took a view of his political life, could suspect of entertaining notions adverse to liberty.

The labour which race-horses are obliged to undergo, although it is not of such long duration as those barbarous matches against time, which have been just mentioned, is, nevertheless, of a very severe description, and requires a certain preparation, by purging and sweating, in order to divest the body of all superfluous fat and fluids, as well as to improve the breathing. But the means resorted to for this purpose are sometimes so

violent, and so injudiciously employed, as not only to defeat the intended object, but even to endanger the life of the animal. It is no uncommon thing to read in a private stud-book of colts *dying in physic;* and several cases of this description have come under the author's own knowledge. Now it must be evident to every man, who has been accustomed to horses, that there is a great difference in their constitutions; that some are gross feeders, and accumulate fat very rapidly; whilst others are irritable and delicate, and require considerable nicety in keeping them in such a way as to preserve their flesh and vigour. To treat two horses of such opposite description alike, in regard to physic and exercise, must be folly in the extreme. Still nothing is more common, and there can be no doubt, that many a good horse loses his race more from the consequences of being injudiciously treated, than from any superiority on the part of his adversary. A horse of a hot, irritable nature, may become, by being overpurged and sweated, so weak and so dry in his muscular fibres, as to be almost as stiff and motionless as a horse made of wood; and, half his race will be run before he gets the free use and pliancy of his limbs by the increased circulation of the blood. The mode of sweating in body-cloaths also tends to produce debility, and its effects are very different from that sort of sweating which is excited by exercise alone. The case is the same with the human kind, with those who are obliged to live in hot rooms, and who are seldom out in the open air. The perspiration which they undergo is considerable, but it leaves the muscles soft and flabby, and does not produce that firm, healthy, and elastic tone, which is found in the muscles of those who labour in the open air.

When the horse is brought to this dry, rigid state of muscle, and being allowed as little water as possible to drink, the discharge of urine is generally very small in quantity, and commonly high coloured. In this state, the training-groom generally gives diuretics, with the view of increasing the quantity, and the natural effect is to excite and irritate the kidneys, and very often to produce inflammation. It must be evident, that, in such a state, the animal cannot be fit to run; but the trainer never suspects that any defect that may arise in the horse's running can be owing to that circumstance.

The custom, also, of fasting a horse so many hours before he starts, must, in most cases, be prejudicial to the animal. It would be unwise to allow a horse to fill his stomach and bowels just before the time of starting, as it must, mechanically, impede the action of the lungs, by pressing against the diaphragm; but it is certain, that too long fasting produces debility; and the action of breathing may be as much affected by debility, as by any other cause; and, there is no doubt, that many a good horse has been beaten by this circumstance alone.

There are many curious calculations in regard to carrying weight; and, it is asserted, by those who are in the practice of racing, that even three pounds will make a horse win or lose. It does not seem very easy, however, to prove such an assertion, and for the following reason:—

If the horse was a mere machine, whose powers are always alike, and not affected by

extraneous circumstances; it is possible, that even so small a weight as three pounds might make a difference. But when it is well known that all living animal bodies undergo considerable variations in their bodily strength, at different periods, how is it possible to ensure that a horse shall be equal in his vigor and wind two days together? and even if it were certain that he should be so, the same certainty might not extend to his adversary; and, on that account, the experiment could not be depended upon.

That these nice calculations are futile, is shewn in instances that occur every day in the racing calendar; and it will be found in looking over the races for any one year, that the favorite, notwithstanding all this pretended judgment, is beat in nine races out of twelve; and that too, not unfrequently, by a horse of little repute.

There is a singular story told of a trial of skill between two men of the turf, about fifty years ago. The one was a west-countryman, the other a Yorkshireman: they each possessed a very capital racer, and their speed was reputed to be so nearly equal, that it was supposed the difference of seven pounds in weight would give either of them the superiority.

The west-countryman meditated a scheme, whereby he thought he should ascertain this fact without the knowledge of the other, and he accordingly sent his training-groom with his horse into the neighbourhood of the Yorkshireman, with instructions to bribe the Yorkshireman's groom to run his master's horse a trial-race, privately, with his own; and to carry, secretly, seven pounds weight more than the other. The Yorkshireman's groom, however, at first declined the bribe, and told his master the circumstance, who commended him for his honesty, but ordered him to accept the bribe, and to carry seven pounds over-weight privately. The trial was run, both horses carrying equal weights, without their riders knowing it; and the result was, that the west-country horse was beat by about half a neck. His owner, however, concluding that he had carried seven pounds more than the other, attributed his being beat to that circumstance, and soon after matched his horse against the other at even weight, and was (very much to his astonishment) again vanquished.

It is very probable, that the above anecdote was fabricated by some great calculator, to prove the effect of a small difference in weight. The celebrated Colonel O'Kelly, the owner of Eclipse, had great faith in the influence of weight, and whenever he ran any of his young horses a trial match with one of his old horses, nobody but himself knew the weight which the horse carried, and this was effected in the following manner; namely, by keeping all his trial-saddles in a room of his own, under lock and key. Thes saddles were loaded with different weights, and when the horse was brought to be saddled, he always brought out the saddle, and put it on himself, and took it off, and carried it back again when the trial was over; so that nobody, except himself, could possibly know the weight which the horse carried. This practice, to a certain extent, might have had its use, but it still furnishes no proof that any very slight difference in weight can have much influence in the deciding of a race. It is more probable, that the difference

in riding amongst different jockies may affect a horse more than a trifling addition of weight; and it is well known, that horses cannot run so well upon some grounds as others. Some horses can run well on a flat, that can run neither up nor down hill, and these, perhaps, are circumstances that require more attention in making a match, than the consideration of a small difference in weight.

There is frequently a considerable difference in a horse's running at different ages. Thus, some will run faster at two years old than at any other period, whilst others do not acquire their greatest powers of speed until three or four years old. The small light colts generally run as well at two years old as they do at a more advanced age; and this arises from their having less bulk and weight, as well as from their being more compact and concentrated in their form than colts of a larger size. Hence the practice of making such early matches as two years old, has led to the custom of breeding from smaller horses and mares, with the view of producing lighter stock of the above-named description. But this has done considerable injury to the general system of breeding for other purposes; because, most of the country stallions, being selected from race-horses of little note, and most commonly of small size, the stock is not likely to be very serviceable either for the road or field.

It is true, that racing colts and fillies are treated with more attention from the time they are foaled than those of any other description. Corn is given to them regularly as soon as they are weaned, and they are handled and broken in as early as possible; but as they are commonly foaled early in the year, about February, (it being so arranged in the system of breeding, for the sake of giving them three months in age more than colts of a common sort, which are generally foaled in May or June) the cold weather at that early season of the year impedes their growth, whilst the want of green food prevents the mares from giving a sufficient quantity of milk, or of that quality which is naturally most congenial to the foal; so that notwithstanding they gain three months in age, they are seldom larger or stronger at six months old than those that are dropped in the usual season, May, or June.

The method of forcing the growth of racing colts, by additional feeding, has not always a good effect; for it sometimes increases the height and general bulk of the animal, without adding to the size of his bone, or the force and vigor of his muscles.

Whether this system was in practice at the early periods of the turf, when Childers, Lath, and other celebrated horses, evinced such superior powers, there are, perhaps, no means of ascertaining with any certainty; but it is pretty generally acknowledged, that the race-horses of the present day are inferior in many respects to those just mentioned; and this proves, in some degree, that premature feeding is not alone sufficient to produce all the requisites that are essential to constitute a complete racer. It is probable, therefore, that the defect lies in the breeding, and as the Godolphin Arabian was the ancestor of all the best horses that have run for many years, would it not be a proper expedient to cross more with foreign blood than is now the practice.

PRECAUTIONS FOR ACCIDENTAL CASES WHILE TRAVELLING.

Every rider must be aware that accidents will occasionally occur; it behoves him, therefore, during a journey, to be prepared for any fortuitous event. By a sudden fright a horse may receive some severe wound or contusion: we have already dilated on the remedies for wounds, (p. 82;) and upon the dangerous effects of bruises, or blows, which sometimes produce lameness in the stifle, (p. 81;) fistula in the withers (p. 241;) and tumors, called capellets, (p. 254.)

The back of a horse is frequently galled by the saddle when it does not properly fit, and then the remedies already proposed (p. 136) should be attended to. Hard work is productive of swelled legs: the horse must, therefore, have rest, and be treated according to the prescriptions in p. 138, &c.

By a sudden fall a horse may break one of his knees, or acquire some other lameness: we have treated upon broken knees, (p. 86;) on lameness, contracted hoofs, corns, &c. (p. 45, 75;) lameness in the ligament, tendons, &c. (p. 78;) in the coffin-joint, (p. 80;) in the whirl-bone, &c. (p. 81, 178.)

The dangerous effects of bad shoeing have been pointed out in p. 36. If a horse accidentally lose a shoe, the rider must adopt an easy pace till another can be provided; and, if the foot be injured, by gravel, nails, or thorns, it must be properly searched, (p. 82.) If the wound be recent and slight, a little oil of turpentine poured upon the part, and set fire to with a hot poker, is commonly a present cure, without any other application

If the coffin-bone be affected, apply

Tincture of benzoin 1 ounce
Spirit of turpentine . half-an-ounce,

Of the following mixed oils, one ounce and a half, viz.

Egyptiacum and spirit of turpentine, of each . . . 4 ounces,

When put into a large pot, that will hold three or four times the quantity of the whole, add,

Oil of vitriol . . . half-an-ounce
Nitrous acid . . 1 ounce,

Mix these with the two first articles, by a little at a time, and immediately add,

Spirit of wine . . . . . 8 ounces,

Mix the whole carefully together, and put them in a bottle for occasional use.

In the preceding part of this work, we have remarked how liable the horse is to catch cold, through the bad accommodations of the stables in several inns. He is sometimes afflicted with

THE TOOTH-ACHE,

A complaint hitherto unnoticed by veterinary writers. This certainly proceeds from

the canker in the grinders; the best cure in this case is immediately to punch out the afflicted grinder or tooth. The canker is generally owing to the bridle being rusty, and may easily be known by the little black blotches, or brown specks, which appear on the tongue, or other parts of the mouth. If not caused by the bridle-bit, like the scurvy in the human frame, it proceeds from bad diet, or may be deemed hereditary, and then it appears in small white specks, and will, in time, spread nearly over the whole of the mouth, and occasion irregular ulcers. The following gargle mixture will be found in this case an effectual cure:—

Wine vinegar . . . half-a-pint
Burnt alum, and common salt, of each . . 1 ounce
Bole armenic . . half-an-ounce,

Mix and shake the whole in a bottle for use.

With this mixture the horse's mouth should be dressed every morning and evening in the following manner:—

Take a small cane, or piece of whalebone, half-a-yard long, and tie a linen rag, or a piece of tow, round one end, then dip it into the mixture, and pass it up his mouth, and gently run over it to all the affected parts; let him chump it well about his mouth, and fast about an hour afterwards.

BITES AND STINGS OF VENOMOUS CREATURES.

The bite of a viper, or adder, if early attended to, may be cured by rubbing the afflicted part, or the whole limb, if necessary, for about an hour, with warm salad oil, repeating it two or three times a day, for about twenty minutes each. If the following liniment can be procured in a short time after the bite, it will be far better, and more effectual in checking the progress of the venom:—

Olive oil . . . . . 4 ounces
Water of pure ammonia, opodeldoc, and tincture of opium, of each. . . . . 2 ounces,

Mix and keep them in a bottle for use.

Let the part affected be rubbed twice a day with this mixture: it will be found an effectual remedy, not only for the bites of vipers, or adders, but also for the stings of hornets or wasps. It will, sometimes, be necessary to give internal medicines, for which purpose the following is strongly recommended:—

Mithridate . . . . 1 ounce
Salt of tartar . . . . 2 drachms

Dissolve them in a pint of rue tea, and add,

Salad oil . . . . . 4 ounces,

To be given about milk warm.

If any feverish symptoms appear, the following opening drink will be necessary:—

Mithridate . . . 1 ounce
Peruvian bark . . half-an-ounce
Aromatic spirit of ammonia . . . . 1 ounce
Castor oil . . . . 8 ounces

Mix the whole in a quart of warm gruel, and give it immediately. It is an excellent drink, and may be repeated once or twice a day, if nceessity require it

BITE OF A MAD DOG.

The following recipes have been recommended in this case:

Musk . . . . . 16 grains
Native and factitious cinnabar, of each . . . . 25 grains,

To be given in a glass of arrack three nights together, and the night preceding the full of three successive moons.

Or,

Garlic heads and rue-leaves, dried and powdered, of each . . . . . 3½ ounces
Pewter, in powder, . . 2½ ounces
Oyster-shells, prepared, . 3½ ounces
Savin-leaves, dried and powdered . . . . 2 drachms,

To be given to a full grown beast in a quart of warm ale, and to be repeated every third day, for three times, and afterwards the day before the moon is in the full, for three successive times.

The most effectual method of cure is instantly to cut out the part bitten, and afterwards to cauterize it with a hot iron. The surrounding parts should be well rubbed with one of the above mixtures, and the wound dressed with the following ointment:

Bees' wax and common turpentine, of each . . . . . 3 ounces
Black pitch . . . . . 1 ounce
Yellow resin . . . . . 6 ounces
Linseed oil . . . . . 1 pint,

Dissolve them together over a slow fire, then take it off, and add,

Spirits of turpentine . . . . 4 ounces,

Put the whole in a pot, and stir till it begins to set.

If the part bitten cannot be cut away and cauterized, we recommend the immediate destruction of the animal, as other remedies may prove fatally fallacious.

The following are useful drinks, which every sportsman should have in readiness to be occasionally administered:

FEVER DRINK.

Cream of tartar,
Turmeric, and
Diapente, in powder, of each, 1 ounce,

Mix and give it in a pint of warm gruel; to be repeated once or twice a day, or oftener, if necessary. Though simple, it may be given in most kinds of fevers, and will generally be attended with success.

INFLAMMATORY FEVER DRINK.

Tartar emetic . . 1 drachm
Prepared kali . . half-an-ounce
Camphor . . . . 1 drachm,

Rubbed into powder, with five drops of spirit of wine.

To be given every four hours, or three times a day, in a pint of water-gruel.

FOR CONVULSIONS, OR THE STAGGERS.

Pulvis antimonialis . . 2 drachms
Assafœtida . . . . 2 drachms
Opium . . . . . 1 drachm,

Rub the two last articles in a marble mortar, with two ounces of spirit of hartshorn, until incorporated:

Mix the whole in a pint of gruel, and repeat it two or three times a day in obstinate cases.

FOR THE COLIC, OR GRIPES.

Epsom salts . . . . 6 ounces
Castile soap, sliced . . 2 ounces,
Dissolve them in a pint of warm ale, and add
Tincture of opium . half-an-ounce
Oil of Juniper . . . 2 drachms,

Mix the whole well, and give it about milk warm; to be repeated every four or five hours, till the symptoms begin to abate.

FOR THE COLIC, GRIPES, FLATULENCY, AND ALL PAINS OF THE INTESTINES, WHEN ON A JOURNEY.

Tincture of opium, and
Oil of juniper, of each 2 drachms
Sweet spirit of nitre
Tincture of benzoin, and
Aromatic spirit of ammonia
of each . . . . half-an-ounce,

Mix them together in a bottle for one drink, and give it in a pint of warm ale. It may be repeated every two hours, until the symptoms abate.

A CORDIAL DRINK.

Tincture of benzoin, of
Friars balsam, and
Aromatic spirit of ammonia,
of each . . . . . 1 ounce,

Put them in a bottle for occasional use.

This is a very useful drink for horses that are overheated in hot weather, and will be considerably improved by the addition of

Prepared kali . . . 2 drachms
Fresh powdered ginger 1 ounce,

To be given in a quart of cold water.

In the winter season, or at any other time of the year, when the horse has not been overheated, this drink may be given in a pint of warm ale, for the colic, or gripes, and flatulencies in the stomach or intestines.

As horses are subject to greasy heels, the rider, on a journey, should have the following ointments:

Common turpentine . 1 pound,

Melt it over a slow fire, and add

Alum, in fine powder, $1\frac{1}{2}$ pound
Bole armenic, in powder, 2 ounces,

Mix the whole together till cold, and when to be used spread it on strong brown paper, apply it over the part that greases, and bandage it on with listing. Once dressing is in general sufficient to perform a cure, if not, repeat it when occasion requires.

FOR SPRAINS, SORE SHOULDERS, BRUISES, &c.

Camphor . . . . . 2 drachms,

Dissolved in half-an-ounce of strong rectified spirit of wine

Nitre . . . . . 1 ounce,

Dissolved in half-a-pint of wine vinegar.

Spirit of turpentine . 4 ounces
White lead, or
Bole armenic, in powder, half-an-ounce
Aquafortis . . . . 1 ounce,

Mix and shake the whole together in a bottle for use.

FRIARS' BALSAM FOR WOUNDS.

Gum benzoin, in powder, . 6 ounces
Balsam of tolu, in powder, 3 ounces
Gum storax . . . . . 2 ounces
Frankincense, in powder, . 2 ounces
Gum myrrh, in powder, . 2 ounces

Soccotrine aloes, in powder, 3 ounces
Rectified spirit of wine . . . 1 gallon,

Mix all together, and put them in a digester; give them a gentle heat for three or four days, and then strain.

TINCTURE OF BENZOIN.

Benzoin, in powder, . . 3 ounces
Strained storax . . . . 2 ounces
Soccotrine aloes, in powder, half-an-ounce
Highly-rectified spirit of wine 3 pints

Digest the whole in a gentle heat for three days, or till most of the gums are dissolved, and then strain.

DAFFY'S ELIXIR, OR TINCTURE OF SENNA

Senna leaves . . . . . 2 ounces
Jalap root, bruised, . . . 1 pound
Coriander seeds, bruised, . half-an-ounce
Proof spirit of wine . . 3 pints,

Digest the whole for seven or eight days, then strain, and add

Lump sugar, powdered . 4 ounces,

Mix, and when dissolved, it is ready for use.

TINCTURE OF MYRRH.

Myrrh, in powder, . . . 2 ounces
Aloes, in powder, . . . 3 ounces
Rectified spirit of wine . . 3 pints,

Digest them in a warm heat for six days, strain and put the whole in a bottle for use.

TINCTURE OF ASSAFŒTIDA.

Assafœtida . . . . . 4 ounces
Rectified spirit of wine . 1 quart,
Digest for seven days, and strain.

TINCTURE OF RHUBARB.

Rhubarb, in course powder, 2 ounces
Cardamom seeds, husked and
powdered . . . . . half-an-ounce
Saffron . . . . . 2 drachms
Proof spirit of wine . . . 2 pints,
Digest for seven or eight days, and strain.

OPODELDOC.

Soap, in shavings . . . . 2 ounces,
Oil of Rosemary . . . . half-an-ounce
Camphor . . . . . 1 drachm
Strong rectified spirit of wine 1 pint,

Digest the soap in the spirit of wine till dissolved, and then add to the liquor the camphor and the oil, shaking them well together.

EGYPTIACUM.

Honey . . . . . 3 pounds,
Melt it over a fire, and then add,
Blue vitriol and
Verdigrease, in fine powder,
of each . . . . . 3 ounces,

Boil them over a slow fire till they have a due consistence and a reddish colour.

Or

Verdigrease, in powder, . 5 ounces
Honey . . . . . 14 ounces
Vinegar . . . . . 7 ounces,

Boil them over a gentle fire.

Or

Verdigrease, and
Alum, in powder, of each . 3 ounces
Blue vitriol, in powder, . . 1 ounce
Corrosive sublimate, in powder 2 drachms
Vinegar . . . . . 5 ounces
Honey . . . . . 1½ pound,

Boil them over a slow fire.

The two first recipes are milder in their operation than the last; and are, therefore, more suitable for *fresh* wounds, while the last will be found preferable in cases of *old* ulcers, obstinate cankers, &c.

OPIUM.

Opium . . . . . 3 ounces,

Slice and put it in a pitcher, and pour a pint of boiling water upon it; rub it well against the bottom or side of the vessel till dissolved; then put the whole in a bottle, and add

Rectified spirit of wine . 1 quart,

To be shaken every day for a week, and then strained

EUPHORBIUM.

Gum euphorbium, in powder, 3 ounces
Camphor . . . . . half-an-ounce
Gum myrrh, in powder, . 1 ounce
Rectified spirit of wine . 1 pint
Prepared kali . . . . 1 ounce,

Mix all together, shake carefully once a day, and let them stand in a gentle heat for seven days; then strain.

This is a powerful tincture for cleansing old wounds, or carious substances.

ON THE DOCILITY, SAGACITY, AND ACHIEVEMENTS OF THE HORSE.

The docility of this animal has been already, though slightly, touched upon in some of our preceding observations. In our directions for riding it has been remarked, that "a good-natured clever man may, with great ease, teach a horse any thing." Indeed, a horse is a tractable animal, and, when properly managed, is truly submissive and obedient. It is to be regretted, that he is sometimes exposed to the attacks of a cruel master; recent examples having been made of the wanton barbarity of drivers. Some dispositions are certainly stubborn and vicious, which render occasional castigation unavoidable, but gentle means are always better than repetitions of severity

The late Philip Astley devoted above forty years of his life-time to the training of horses, and the docility of the animals under his care was really wonderful; they would perform the figure of a minuet; lie down at the word of command; and, during a sham battle, fall as if dead, and not stir till they had permission. Gentle means, as already observed, (p. 344;) were chiefly adopted for their instruction; but menaces, and an authoritative

one first of all insured compliance: they had an imperious master, who would suffer none of his servants to be idle, as the following anecdote, (never before published, and which was witnessed by the writer) will sufficiently testify:—

Perceiving a man in his band suddenly cease performing on his violin, Mr. Astley exclaimed, "Sir, Sir! why are not you playing?"—"It is a *rest*," replied the man, meaning *a rest in music*. "A *rest!*" exclaimed Mr. A. "but, Sir, I pay you a weekly salary, and by —— I'll suffer no man to *rest* that's in my employment." There is no doubt but he was exceedingly kind to his horses, but he certainly would not let them *rest* till they performed their daily tasks.

Sagacity is the natural concomitant of docility, and the horse is in many instances remarkably sagacious: those constantly employed in mail-coaches, waggons, &c. require little or no guidance; they know their way either backwards or forwards, and stop spontaneously at each place of destination.—When unharnessed they will find their way to their stable at the respective inns, and are often permitted to go alone. If long accustomed to a master or mistress, the horse will become attached to the individual; but this attachment is of a more dignified nature than a dog's; indeed, there is a consciousness of dignity about the horse which sometimes borders upon pride. He delights in gaudy trappings; and, it has been remarked, that the horses used in herses frequently shake their plumes with a supercilious air.

This docile and sagacious animal has had the honor of lately treading the boards of a theatre royal; Astley's horses, which had acquired so much celebrity at the royal amphitheatre, Westminster-bridge, having been engaged, at different periods, by the proprietors of Covent-garden theatre, where they were provided with every due accommodation. Some cavillers have deemed their introduction on a regular stage as derogatory to the legitimate drama. Those fastidious critics should recollect, that a dog was the *hero* of a piece at the late Drury-lane theatre; the principal character in Mr. Reynolds's *watery* entertainment of the "Caravan," having been ably supported by a fine Newfoundland dog. The "Dog of Montargis" has also been recently the hero of "The Forest of Bondy," at Covent-garden theatre. "Timour the Tartar," written expressly for the equestrian troop, is, as a literary production, contemptible; it is only a spectacle, and, as such, was as much entitled to the assistance of horses as of machinery, &c "Blue-beard" is entirely indebted for its celebrity to the nursery tale, and was a very proper *vehicle* for horses. The propriety of introducing horses in "Lodoiska" may be disputed; but as it was by the translator's permission, (probably desire, for he purposely made alterations in the piece) the proprietors certainly did their duty, and were remunerated for their trouble. The feats of these animals drew crowded houses, and the exhibition was the subject of surprise, as well as the object of delight.

The dancing dogs which Mr. Elliston introduced to the public at his Olympic theatre, and whose performances were very surprising, were by no means so attractive as the equestrian troop: the conviction that these poor animals had been *tortured* into compliance

by their French masters, considerably deducted from the gratification which would otherwise have been felt.

The horse is certainly the most useful of all quadrupeds; he gives rapidity to the coach, and by him immense loads are conveyed to any distance.

Man is often indebted to this animal for exercise and pleasure; he slackens or hastens his pace according to the will of his rider; he is always an active assistant in hunting, and sometimes in shooting; he is the hero of a race, and a delightful companion in travelling; he gives dignity to the equipages of the great, and generally adds to the grandeur of processions.

Horses, on account of their strength, formerly were objects of adoration, having been worshipped by ancient kings, who are justly censured by the royal psalmist for "putting their trust in them." Though a useful and valiant animal in the field of battle, yet many a hero has escaped without any other loss than that of having, perhaps, *two* or *three* horses killed under him. They endure a greater share of fatigue, and being bulky, their existence is, consequently, more precarious.

Goldfinch, by *Lop*, the property of John Turner, Esq. acquired great celebrity as a hunter in the Mershem, or Jolliffe hunt.—*Sharke*, got by *Marsk*, his dam by *Snap*, grand-dam by *Marlborough*, brother to *Babraham*, out of a natural barb mare, was renowned for his performances, which were deemed greater than any other horse's in England. At three years old he beat *Postmaster* for five hundred guineas: he received from *Prior* two hundred guineas: he won from *Jacinth* three hundred guineas, at four years old, (April 17, 1775): he won a sweepstakes, (ten subscribers, two hundred guineas each); and another, thirteen subscribers, one hundred guineas, and a hundred of claret each; also the Clermont cup, value one hundred and twenty guineas, and one hundred guineas each, and a sweepstakes, (thirteen subscribers, twenty-five guineas each.) He won five hundred guineas from *Cincinnatus*, and beat *Johnny* (six years old) for one thousand guineas when five years old. He again beat *Postmaster* for one thousand guineas, and won a sweepstakes, (three subscribers, one thousand guineas each). He beat *Rakes* for one thousand guineas, and won of *Leviathan* five hundred guineas, (July 8). He received from *Critic* one thousand guineas; from *Johnny* five hundred; and beat *Fireaway* for three hundred guineas. At six years old he walked over B. C. for one hundred and forty guineas; he received from *Leviathan* five hundred guineas, and again beat *Leviathan* for one thousand guineas, and *Hephestion* for five hundred guineas. He won ninety-two guineas for all ages when ten horses started. He received one hundred guineas compromise from Lord Grosvenor's *Mambrino*; and when aged he beat *Nutcracker* a mile. *(See the Plate.)*

Dungannon, got by *Eclipse*, (an extraordinary horse) was a most certain foal-getter; he got three colts to a filly; which, for their uncommon strength, symmetry, and size, were sold for five hundred guineas each. This celebrated runner is the size of *Lurcher*, *Totteridge*, *Oatlands*, &c. &c.

Flora, the property of Lord Darlington, and of the old English breed, made a most extraordinary leap over a hedge four feet

SHARKE.

The Performances of Sharke are much greater than any other Horse in England, having won upwards of 20,000 Gs. as follows — At 3 Yrs old he beat Postmaster for 500 Gs. He recd from Prior 200 Gs. He won from Jacinth 300 Gs. at 4 Yrs old April 6 1775. He won a Sweepstakes (10 Subscribers) 200 Gs. each & another of 100 Gs. & a Hh.d of Claret each (13 Subscribers) He afterwards won the Clermont Cup, value 120 Gs. & 100 Gs. each & Walked over the R.C. for a Sweepstakes of 25 Gs. each (13 Subscribers) He won 500 Gs. from Cincinnatus & beat Johnny (6 Years old) for 1000 Gs. when 5 Yrs old. He beat Postmaster, for 1000 Gs. on the 29th He won a Sweepstakes for 1000 Gs. each (3 Subscribers) He beat Rake for 1000 Gs. & won of Leviathan 500 Gs. on the 8th July He recd from Cribe 1000 Gs. He recd from Johnny 500 Gs. He beat Fireaway for 300 Gs. He walked over R.C. for 140 Gs. at 6 Yrs old He recd from Leviathan 500 Gs. He again beat Leviathan for 1000 Gs. & Hephestion for 500 Gs. He won 32 Gs. for all ages, when 10 Horses started. He recd 100 Gs. compromise from Lord Grosvenor's Mambrino, & when aged He beat Nut-cracker a Mile, giving 2 St. & Ld Ossory's Dorimont, for the Whip weight 10 St. Shark was got by Marsk. His dam by Snap, Grand dam by Marlborough, Brother to Baldwin, out of a Natural Bay-Mare; Sharks dam was also the dam of Mr. Swinfen's famous Horse, that won the Great Stakes at Newmarket, in the Year 1777, very easily beating Ld Grosvenor's Pot 8o's Flea-catcher, Rafsolas, &c when 16 Horses started.

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GOLDFINCH.

A Celebrated Hunter, the Property of John Turner Esq.r well known in the Marsham or Jolliffe Hunt.

London Published by W. LEWIS & Co.s St.John's Square.

FLORA.

high, with a ditch behind, measuring seven yards and three quarters in width, from the top of the hedge.

Tramp, a bay horse, foaled in 1810, was bred by Richard Watt, Esq., of Bishop Burton, near Beverley, Yorkshire; got by *Dick Andrews*, and his dam, (bred by Lord Egremont) by *Gohanna*, which was also the dam of *Scamp*. At Malton, April 6, 1813, *Tramp* won a sweepstakes of fifty guineas each, beating Mr. Grimston's *Dulcinea*, by *Sancho*, and Sir M. M. Sykes's *Diabolus:* on the same day he won a sweepstakes of twenty guineas each, (one mile and a half) beating Mr. Morris's *Luna*, by *Stamford*, and Mr. Dalrymple's *Tomboy*. At Beverley, June 2, he won a sweepstakes of twenty guineas each, (one mile and a half) beating Mr. Harrison's *Latona*, Sir B. R. Graham's *Bacchante*, and Sir M. M. Sykes's, br. c. by *Sancho*. At York Spring Meeting, 1814, he won the gold cup, value two hundred and twenty guineas, (three miles) beating *Viscount*, (five years old) *Shepherd's Boy*, (three years old) and *Mexico*, (four years old.) At Beverley, May 26, he won the gold cup, value one hundred and thirty guineas, (four miles) beating *Woodman*, and Sir B. R. Graham's b. c. On the next day he beat *Silston* for 50*l*. At York August Meeting, he was beat with great difficulty for one of the great subscription purses, by *Prime Minister*, but beat *Hocuspocus* and *Cameleopard*. At Pontefract, September 14, he won the gold cup, value one hundred and twenty guineas (four miles) beating *X Y Z* (six years old) and *Marciana* (five years old.) At Doncaster, September, he was beat for the Fitz-William stakes, by *Catton*, but beat *Cossack*, *Ranger*, and *Fairville*. This was one of the finest races ever seen, and won with the greatest difficulty. The next day he won the Prince's stakes of twenty-five guineas each, with twenty-five guineas added (six subscribers) beating *Hocuspocus*, by *Quiz*, *Molineux*, by *Hambletonian*, *Don Carlos*, by *Sir Charles*, and *Rodrigo*, by *Sancho;* and, on the following day, he won the gold cup, value one hundred guineas and upwards, beating Lord Fitz-William's *Camelcopard*, Mr. Blake's *Sprightly*, and Sir W. Milner's *Mamoune*.

Tramp was beat twice when three years old, which, with the above, constituted the whole of his racing. The noted John Jackson rode him for all these races except the cup at Doncaster, when James Garbutt rode, owing to the former being above weight.

X Y Z, got by *Haphazard*, her dam by *Spadille*, was bred by Ralph Riddell, Esq. of Felton Park, Morbeth, Northumberland, and foaled in 1808. In 1811, *X Y Z* won the gold cup, value one hundred guineas, and fifty guineas in specie, at Newcastle-upon-Tyne, beating *Engraver*, *Rover*, and *Penelope*. In 1812, at the same place, he beat *Merryfield* for the four years' stakes, of twenty-five guineas each; he won the gold cup, value one hundred guineas, and forty guineas in specie, beating *Benedict* and *Geranium*. At Doncaster he walked over for a match of three hundred guineas, against Mr. Hipkins's *Yellow Blossom*. At Richmond he won the gold cup, value one hundred guineas, with 39*l*. 10*s*. added, beating *Phantom*, *Crow*, *Merryfield*, *Heliantha*, *Salamanca*, and *Viscount*. At Durham, in 1813, he won 70*l*. at three heats, beating *Tilbury*. At Newcastle-upon-Tyne, he won 50*l*. beating *Macaroni*, *Marksman*, and *Pigeon*.

The same week he won the gold cup, value one hundred guineas, and seventy guineas in specie, beating *Sligo, Agnes, Sorrel,* and *Epicure.* At Ormskirk he won the Loyalty gold cup, value one hundred guineas, and ninety guineas in specie, beating *Don Julian.* At Richmond he won the cup, value one hundred guineas, and forty-three guineas added, beating *Hocuspocus, Algernon, Trajon,* and *Rodrigo.* Next day he won two heats, three miles each, (seven subscribers) a stake of ten guineas, with 50*l.* added, beating *Algernon, Catherine,* and *Cwrw.* In 1814, *X Y Z* and *Catton* ran a dead-heat, two miles and a quarter, for a stakes of twenty-five guineas each, (six subscribers;) after the dead-heat the former received a compromise, and the latter walked over. He won the gold cup, value one hundred guineas, and sixty guineas in specie, beating *Biddick* and Sir C. Monck's bay colt. At Lamberton he walked over for the gold cup, worth one hundred guineas, four miles. At Richmond he won the gold cup, with forty-four guineas, beating *Biddick, Crown-prince, Hocuspocus,* and *Tempest.* In 1815, he broke down in running for the gold cup, at Newcastle-upon-Tyne, against *Biddick.*

Viscount, got by *Stamford,* dam by *Bourdeaux,* was bred by J. W. Childers, Esq. of Cantley, near Doncaster, Yorkshire, and foaled in 1809. In 1812, he won at Durham 70*l.* for all ages, three miles heat, at three heats, beating *Heliantha, Ravedine, Query,* and *John Hutchinson.* At Nottingham, he won the members' plate of 50*l.* three years old colts, at three heats, one mile each, beating *Tom Tit, Raspberry,* and a colt by *Orlando.* At Pontefract he won the cup, value one hundred and sixty guineas, beating *Don Julian, Biscuit, I'm-sure-he-shant,* and *Euryalus.* At Doncaster, he was purchased by Sir William Maxwell for eight hundred guineas, and won the 100*l.* for three years old, two mile heats, beating, at three heats, *Legerdemain, Skip, Hermit, Navigator, Fitz Oliver, Kid, Young Delpini, Wisdom,* and *Sir Hedworth.* In 1813, at Caterick Bridge, he won a stakes of twenty guineas each, two miles, (eight subscribers) beating *X Y Z, Rebecca,* and Lord Belhaven's colt. At Durham, he won the cup, value one hundred and twenty guineas, three miles, beating *X Y Z, Wrodman, Limblifter, Engraver,* and *Don Carlioso.* At Stockton, he won the cup, value one hundred guineas, beating *Macaroni.* At Preston, he won the gold cup, value one hundred guineas, with two hundred guineas in specie, beating *Catton, Uncle Dick, Manuella,* and *Cwrw.* At Pontefract, he won the cup, value one hundred and forty guineas, beating *X Y Z.* At Doncaster, he won the Prince's stakes, of twenty-five guineas each, with twenty-five guineas added, beating *Langold.* Next day he won the cup, value one hundred guineas and upwards, beating *Marciana, Fugitive, Amadis de Gaul, Oriana's* brother, and Duke of Leeds's b. c. In 1815, he won fifty guineas at the Caledonian hunt and Dumfries races, at two heats, three miles each, beating *Surveyor, Arabella,* and *Drouthy Kate.*

Viscount was a superior runner at four years old, till he met with an accident, which caused firing necessary, after which he lost his racing powers.

Langton was bred by John Grunston, Esq. of Neswick, near Beverley, Yorkshire, and

foaled in 1802: he was got by *Precipitate*, and his dam, (who also bred *Alonzo, Charlotte*, &c.) by *Highflier*. At Malton Craven Meeting, 1805, he won a sweepstakes of twenty guineas each, beating *Truth, Sir Riginald, Laura, Norval*, and two others. At Doncaster he won 100*l.* beating, at three heats, *Master Betty, Cleveland, Young Chariot, Scampston*, and *Sir Andrew:* he also received forfeit from Lord F. G. Osborne's *Don Felix*, and was sold to Mr. Howorth. At Bibbury, 1806, he won a sweepstakes of twenty-five guineas each, with one hundred guineas added by the club, (nine subscribers) beating *Pedestrian*, and *Bagatelle*. At Oxford, he won the cup of eighty guineas, beating *Quiz* and *Rumbo*. Next day he won, at two heats, two miles each, fifty guineas, beating *Pantaloon*. At Egham, he won a stakes of twenty guineas each, (five subscribers) beating *Candidate*. At Newmarket Craven Meeting, 1807, he won two hundred guineas, beating *Rosabella*. First Spring Meeting, fifty guineas, beating *Charmer*. Second Spring Meeting, he received one hundred guineas from *Pagoda*. Second October Meeting, he received forfeit from *Briscio*, and was then sold to Lord Jessey. At Newmarket July Meeting, 1808, he won fifty guineas, beating *Ned*. In the Houghton Meeting, he won a stakes of one hundred guineas each, (three subscribers) beating *Tot* and *Bramble*. The same day he beat *Romeo* for fifty guineas. The next day he won 50*l.* beating *York, Prospero, Rambler, Cerberus, Pelisse, Hedley, Momentilla, Weaver*, and another. In the July Meeting, 1809, he received forfeit from *Podagra*. He won 50*l.* beating *Vanity* and *Norah*. He received forfeit from *Woodwill*, that beat *Juniper*, for one hundred guineas, and received forfeit from *Preek*. In the Craven Meeting, 1810, he won the third class of the Oatlands (fourteen subscribers) beating *Bulrush, Trump, Metevra, Hylas, Thorn, Cecilia, Black Diamond, Æsculapius, Little Preston*, and *Sir Edward*. In the first Spring Meeting, he won the gold cup, value eighty guineas, the remainder in specie, (fourteen subscribers) beating *Invalid, Gundy*, and several others. First October Meeting, he won the trial stakes of ten guineas each, beating *Norval, Burleigh, Deceiver, Benvolio*, &c. In the Craven Meeting, 1811, he beat *Deceiver* for one hundred guineas. In the first Spring Meeting, 1812, he won fifty guineas, beating *Bustler* and *Illumination;* and he beat *Discount* for one hundred guineas.

Don Cossack, a black horse, foaled in 1810, got by *Haphazard*, his dam *Alderney*, was bred by Lord Jersey, and sold to the Honorable H. Villiers. He is sixteen hands high, without white, excellent legs and feet and of a courteous temper. In the Newmarket Meeting, 1813, he won a stakes of one hundred guineas each, (eight subscribers.) In the Second Spring Meeting, he won two hundred guineas. He beat *Vulpecula* for one hundred guineas; also *Handel* for two hundred guineas. In the July Meeting, he beat *Hydaspes* for two hundred guineas; next day he won 50*l.* beating *Onyx, Juby, Lama*, the *Captain*, and another. In the first October Meeting, he beat *Idleboy* for one hundred guineas. In the Houghton Meeting, he beat *Hocuspocus* for two hundred guineas. In the first October Meeting, 1814, he won one third of a subscription of twenty-five guineas each, (eighteen subscribers) beating

Cannon-ball. In the Newmarket Craven Meeting, 1815, he won the third class of the Oatlands, fifty guineas each, (ten subscribers) beating *Alcohol, Mermaid,* and *Fugitive.* In the first Spring Meeting, he won the king's purse of one hundred guineas, beating *Otterington.* In the second Spring Meeting, he beat *Charlotte* for one hundred guineas. He won the Jockey Club purse of sixty guineas, beating *Pericles, Oliver,* and *Greymarquis.* This was the last time of his starting.

To prove the sagacity of the horse, the following anecdote will be sufficient. At the fair at Camberwell-grove, Surrey, August 21, 1816, a beautiful bay horse, the property, as supposed, of a company of French equestrians, surprised and delighted every beholder. The little animal was brought into the ring, to exhibit his interesting tricks to the company which had paid to see him. At the first word of command, he approached his master, looked up in his face, and waited for orders. "Come, Sir, prepare," said the man, "take off your saddle." The pony retired immediately to the outer circle of the ring, or side, and applied his teeth to the girths, which he unbuckled, and threw off the saddle and saddle-cloth. "Now, Sir," said his instructor, "go round and ask some lady or gentleman to lend you a pocket-handkerchief." The pony walked slowly round the ring, and stopping before a young woman, bowed his head, and drew his off fore-foot along the ground. The young lady instantly held out a white handkerchief, which the pony received with his teeth, and conveyed to his master. The handkerchief was thrown several times on the side, and the animal on full speed picked it up; on one occasion, having missed it, he returned, took it from the ground, and gave it to the director. A small black pony was then brought out, and placed across the outer circumference. The bay pony was commanded to look at him, and to leap over his back. The obedient little animal instantly performed the task, and afterwards leaped through a hoop held over the black pony's back.

After several other tricks, this performer was succeeded by an old cream-coloured horse, which danced to the "Belleisle march" with astonishing precision. At the conclusion of the equestrian performance, not only the three horses already mentioned, but several others, fell down at the sound of a single monosyllable, and counterfeited the appearance of dead horses; at another signal they all rose again with the same facility.

Various other feats, of the most astonishing description, are constantly performed by horses, particularly Astley's equestrian troop already noticed; but the sagacity of the Camberwell-fair horses was almost enough to make the spectators believe the statement of a celebrated authoress; namely, that horses and dogs are capable, with due instruction, of performing characters in our best pantomimes and melo-dramas. Whether or not the instruction of these horses was attended with that severity which, according to report, accompanied the tuition of the dancing dogs, exhibited by a French master, it is impossible to ascertain

A stallion, belonging to Mr. Mac Meekan, of Balmay, in Galloway, on going its rounds in Annandale, happened to be placed in the stable of a farmer in Hoddam, along with some other animals of the species, amongst

which was a mare big with foal. In the middle of the night his keeper, who lay in a room adjoining the stable, hearing a noise and commotion among the horses, rose, and roused the farmer, with whom he proceeded to the stable, where, to their great consternation, they found the mare broken loose from her halter, and in the same stall with the stallion. Their fears for the safety of the mare were, however, quite unfounded. The horse was standing close to one side of his stall, as if to make room for his female friend, and was eyeing her with a look of extraordinary gentleness and complacency. But the surprise of the spectators was greatly increased, when they observed that the mare had just foaled, and that the foal had wandered from the stall of his dam, and was lying quietly below the belly of the stallion, whilst the generous animal had placed himself, with evident intention, in such a situation as to avoid injuring it.

Race-horses of former days certainly carried less weight than those of the present: when the Derby stakes were first established at Epsom, the weight then carried was but eight stone, or eight stone two pounds; but now it has progressively increased to eight stone seven pounds; and it has likewise progressively risen both in the gold cup and St. Leger stakes at Doncaster, and in a variety of other stakes

The following perilous equestrian feat took place, October 10, 1815:—T. Poole, Esq. of Hadgrove, Sussex, undertook, for a wager of fifty guineas, to ride down the steepest part of the Devil's dyke, near Brighton, on horseback; a descent, at least, of three hundred yards, and in many places almost vertical; this dangerous task Mr. Poole (not only one of the most daring, but one of the best riders in the country) performed on the appointed day with the greatest ease, in the presence of a field of nearly one hundred sportsmen. In the descent, he was allowed to diverge ten yards only to the right or left of the starting point; but so nearly straight was his progress, that he did not deviate more than three feet at most from the line. He rode an aged mare of his own, who rapidly executed her task, galloping with her fore-feet, and sliding upon her hocks, no less to the astonishment than gratification of all present

About twenty years before, Lady Worsley is stated to have accomplished the same task on her hunter, after the hounds, but no one of the field had the courage to follow her.

Colonel Way, of the 29th regiment, came into the possession of two horses, *Suwarrow* and *Black Jack,* whose histories are remarkable:—

Suwarrow was once the property of the grand-vizier of the Turkish empire, who, having been killed in battle, was taken by the enemy, and became the favorite charger of the great Russian general Field-marshal Count Suwarrow, who, for his gallant conduct in Italy, was surnamed Italinski. *(See Gifford's History of the Wars of the French Revolution.)* After the death of that illustrious commander, *Suwarrow* was brought to England by the Russian ambassador, who gave him to Lord Sheffield, and his lordship afterwards presented him to his nephew, Colonel Way

Black Jack formerly belonged to the Hon Colonel Augustus Lake, of the 29th regiment,

who, at the action of Roleia, in Portugal, lent him to Colonel Way; but the horse he was himself mounted on having been killed by a cannon-ball, in the heat of the battle, Colonel Way returned him to Colonel Lake. Shortly after this, Colonel Lake was killed by a musket-shot, while gallantly fighting at the head of the 29th grenadiers, and *Black Jack* was taken prisoner, and became the property of a French general, from whom Colonel Way bought him, soon after the memorable convention of Cintra, and since rode him at the battles of the Douro, Busaco, Talavera, and Albuera; at the last of which, the colonel having been severely wounded, this fine charger narrowly escaped being a second time taken prisoner by the French.

Suwarrow and *Black Jack* having entirely escaped from the fatigues of war, contracted the strictest friendship for each other; for if separated for even a moment, they expressed the greatest impatience, by neighing and restlessness.

Cardinal York, a brown horse, foaled in 1804, got by *Sir Peter Teazle,* his dam *Charmer,* and bred by Edward Ellerker, Esq. of Hart, Hartlepool, Durham, was bought at Mr. Ellerker's sale of the stud at Doncaster, for two hundred and fifty guineas. At York Spring Meeting, 1807, he won the twenty guineas stakes, for three years old colts, one mile and three quarters, (ten subscribers) beating *Hylas, Grey Knowsley, Whitenose, Windle, Rossington,* and Sir H. T. Vane's b. f. by *Phænomenon.* In the York August Meeting, he won a sweepstakes of thirty guineas each, twenty guineas forfeit, for three years old colts, beating *Comrade,* and Lord Darlington's colt, by *Archduke.* In the Newcastle-upon-Tyne Meeting, 1808, he won a sweepstakes of twenty guineas each, for four years old colts, four miles, (five subscribers) beating *Oran* and *Sylvio.* He won the king's purse of one hundred guineas, four miles, beating *Ranger.* He also won the gold cup, value one hundred guineas, with forty guineas in specie, three years old, four miles, beating *Harmless, Cramlington, Smasher, Mark Anthony,* and *Lysander.* In 1809 he won sixty-two pounds twelve shillings, four miles, beating *Little Fanny* and *Cramlington.* He also won the king's purse of one hundred guineas, beating *Mowbray;* the gold cup, value one hundred guineas, with forty guineas in specie, four miles, beating *Julius Cæsar* and *Cramlington.* This was a very great betting race, and the friends of *Julius Cæsar* lost their money to a considerable amount.

At Richmond, *Cardinal York* won the gold cup, value one hundred guineas, with forty guineas added, four miles, beating *Mowbray, Rosette, Swiftsure, Ceres,* and *Lingadel.* This was a very fine race, and won with great difficulty. It was the last time of his appearing in public as a racer.

Catton, a bay-horse, foaled in 1809, got by *Golumpus,* his dam *Lucy Gray,* by *Timothy,* was bred by Messrs. W. Horsley and S. King, whose property he was till 1811, having been then sold to the Earl of Scarborough; in the York August Meeting, 1812, he won a sweepstakes of fifty guineas each, for three years old colts, two miles, (nine subscribers) beating *Langold, Boadicea, Euryalus, Zigzag,* and *Don Carlos.* In the York Spring Meeting, 1813, he ran second to *Sligo,* for a sweepstakes of twenty guineas

HAMBLETONIAN.

each, two miles, beating *Geranium, Langold, Mowbray, Otterington,* and *Casloff.* At the same meeting, he ran second to *Sligo* for the Constitution stakes of twenty guineas each, beating *Geranium, Otterington, Fugitive, Salamanca,* Mr. Gascoign's b. c. by *Sancho,* Duke of Leeds' b. f. by *Beningbrough,* and Sir M. M. Sykes's sister to *Prime Minister.* Next day he won seventy pounds, at two trials, for all ages, three miles, beating *Navigator, Manuella,* and Mr. Brade's b. f. by *Diamond.* This was easily won.

At York August Meeting, *Catton* won the king's purse of one hundred guineas, four miles, beating *Otterington* and *Knight Errant.* At Doncaster he won a sweepstakes of fifty guineas each, (six subscribers) beating *Algernon.* Next day he won the hundred pound purse at two heats, two miles, beating *Ploughboy,* Mr. Garforth's g. f. by *Sancho,* Lord Belhavin's b. c. by *Master Robert,* and *Diabolus.* This was easily won.

In the York Spring Meeting, 1814, *Catton* ran second to *Cannon-ball* for the Constitution stakes, of twenty guineas each, for all ages, one mile and a quarter, beating Mr. Vernon's b. c. by *Newcastle, Catherine,* and *Viscount.* At Newcastle he ran a dead-heat with *X Y Z,* for the Northumberland stakes, of twenty-five guineas, for all ages, two miles and a quarter, (six subscribers) beating *Agnes, Sorrel,* and *Lobo.* After the dead-heat *X Y Z* received a compromise, and *Catton* walked over. In the York August Meeting, he won another of the great subscription-purses of two hundred and seventy-seven pounds ten shillings, four miles, (thirteen subscribers) beating *Skip.* Next day he won another of the great subscription-purses of two hundred and seventy-seven pounds ten shillings, four miles, beating *Epperston* and *Woodman.*

At Doncaster, *Catton* won the Fitz-William stakes, of ten guineas each, with twenty guineas added, (seven subscribers) beating *Tramp, Cossack, Ranger,* and *Fairville.* He also won the stakes of ten guineas, with twenty guineas added, four miles, (thirteen subscribers) beating *Fugitive,* and Mr. T. Duncombe's b. c. by *Chance.* This was easily won.

At York Spring Meeting, 1815, *Catton* won the gold cup, value one hundred and fifty guineas, with thirty guineas in specie, three miles, beating *Rosanne,* Mr. Garforth's grey f. by *Hambletonian,* and *Marciana.* Won in a canter. Next day he won the Constitution stakes of twenty guineas each, (fourteen subscribers) beating *William,* and *Miss Cannon,* (sister to *Cannon-ball.*) At York August Meeting he won a subscription of twenty-five guineas, two miles, (eleven subscribers) beating *Altisidora* and *Viscount* He also won one of the great subscription-purses of two hundred and seventy-seven pounds ten shillings, beating *Altisidora.* At Doncaster he won the gold cup, value one hundred guineas and upwards, beating *Everlasting, Marciana, Fulford, Legacy,* and *Fugleman.* He also won the Doncaster stakes of thirty guineas, with twenty guineas added, (thirteen subscribers) beating *Altisidora.*

In 1816, at York Spring Meeting, *Catton* won the gold cup, value one hundred guineas, with twenty guineas in specie, beating *Fulford, King Coil, Arcot Lass,* Mr. Gurforth's gr. c. by *Camillus,* and *Everlasting.* At Newcastle he won the gold cup, value one hundred guineas, with thirty guineas in

specie, beating *Shepherd*. At York August Meeting he won the subscription-purse of twenty-five guineas each, (eleven subscribers) beating Sir M. M. Sykes's b. f. by *Camillus*, and the Duke of Leeds's b. c. by *Orville*. He also walked over for one of the great subscription-purses of two hundred and seventy-seven pounds ten shillings, four miles, and won the Doncaster stakes of ten guineas each, with twenty guineas added, (thirteen subscribers) beating *Dinmont*. He started only once after, and was beat by *Rasping*.

Partisan, a bay horse, foaled in 1811, won a great deal of money. *Whalebone*, foaled in 1807, won several stakes, and was sold at Mr. Ladbroke's sale, in 1814, for five hundred and ten guineas. *Biddick* (already mentioned) obtained some prizes, and was purchased by Colonel Whaley, having been bred by Mr. W. Edwards. *Blucher*, a bay horse, foaled in 1811, was remarkable for his achievements; also *Whisker*, foaled in 1812, *cum multis aliis*.

A singular instance of the courage of a race-horse occurred during the race for the Members' Plate, at Salisbury, August 17, 1814. Mr. Radcliffe's *Speculator*, shortly after starting, broke down, notwithstanding which, although he had nearly two miles to run, and gave the filly *Amanda* forty pounds, after a severe struggle he ran a dead-heat with her.

In December, 1815, Lord Carmarthen, son of the Duke of Leeds, whilst hunting with his father's hounds in the neighbourhood of Hornby Castle, Yorkshire, leapt a brook which was bank full; and on being measured the next day from hind-foot to foot, it was twenty-six feet nine inches. His grace, though known to be a superior horseman, did not venture over it; neither did the huntsman, nor whipper-in, or indeed any other person in the field. Lord Carmarthen was on *Phillipic*, an excellent hunter, and when two years old was one of the most speedy horses of his age.

It is recorded of the Roman emperor Heliogabulus, that he was so passionately fond of one of his horses, that he actually created him Consul of Rome, and gave him a stately palace, with a magnificent set of apartments richly furnished, and a suite of household officers and attendants to wait on him

ON THE DOG.

AS dogs are always the companions of horses, in the chase, shooting, &c. a general description of this animal cannot be unacceptable to the lovers of sport. For docility and sagacity the dog is equal to the horse; for fidelity he may be thought superior, as the horse is subject to many masters during his life-time, which must prevent a permanent attachment. The horse and dog are equally celebrated for their speed, but the former depends upon his strength, and the latter upon his scent. Some assert, that the dog is the most intelligent of all quadrupeds, and one of the most useful servants; it is certainly the most sincere. The dog, independent of the beauty of his formation, his almost invariable vivacity, his strength and swiftness, has all the interior qualities which can attract the attention and esteem of man. When once domesticated, he almost instantly (and as it were instinctively) exerts his talents in the execution of his office; with the utmost humility in his manner, and penetrative property in his eye, he approaches his master at every interval of possibility, and submissively obtruding himself on his attention, endeavours to demonstrate the powers he possesses, and only waits his master's orders to bring them into use. When the attention, thus solicited, is obtained, he watches every look and action, that he may the better conceive the intents and suggestions, or anticipate the wishes, of his master, it being evidently the sole happiness of his life to execute his commands. In every action he is all zeal, all obedience, and all gratitude; more sensible of favours spontaneously conferred, than of injuries ill deserved, he very soon forgets the latter, but never fails to remember the former. If reproof or correction be injudiciously offered, or unjustly administered, he seldom, if ever, gives proof of pusillanimity in running away to avoid the punishment, but opposes patience to persecution, and submissively licks the hand by which the blows are inflicted.

A natural share of courage, and an angry and ferocious disposition, render this animal, in a savage state, a formidable enemy to the different tenants of the forest: these qualities, however, give way to others of a very different complexion in a domestic dog, whose only ambition seems to be a desire to please. He is always assiduous in seeking his master, and kind only to his friends; to all the rest he is indifferent, and declares himself openly against such as appear to be dependant like himself. He knows a beggar by his clothes, his voice or his gestures, and generally forbids his approach with marks of indignation; at night, when the guard of the house is committed to his care, he seems proud of

the charge: he continues a watchful sentinel, goes his rounds, scents strangers at a distance, and, by barking, gives them notice of his being upon duty: if they attempt to break in, he becomes fiercer, threatens, flies at them, and either conquers alone, or alarms those who have most interest in coming to his assistance. When he has torn from the intruders what they were endeavouring to steal, he quietly repasses by the spoil, and, if eatable, will not touch it even to satisfy hunger: the flock and herd are even more obedient to the voice of the dog than to that of the shepherd or herdsman; he conducts them, guards them, and keeps them from capriciously seeking danger, and their enemies he considers as his own. Nor is he less useful in the chase, when the sound of the horn, or the voice of the huntsman, calls him to the field: he testifies his pleasure by every little art, and pursues, with unwearied perseverance, those animals of which, when taken, he never expects to participate.

THE TEETH.

A dog has six cutting teeth in the upper jaws, those at the sides longer than the intermediate ones, which are pointed, and in the under jaw six cutting teeth, the lateral being pointed. He has, besides, four canine teeth, one on each side, both above and below, and six or seven grinders.

FOOD.

Though a carnivorous animal, the dog will not eat indiscriminately of every animal substance: he will refuse the bones of a goose, crow, or hawk, as well as the flesh of his own species, which can be cooked in no manner whatever to deceive him. He will feed on most other animal substances, whether fresh or putrid; and will eat fruits, succulent herbs, and bread of all sorts. His digestive powers are so great that he draws nourishment from the hardest bones. He eats very greedily, and, if allowed, will frequently gorge till he is sick, particularly of horse-flesh. His excrements, after eating bones, are hard and white, and were formerly used by physicians as a septic, but are now in no repute.

PECULIAR HABITS.

When a dog is fatigued, he hangs his tongue out of his mouth, but never perspires. When about to lie down, he turns himself round several times, and, if uneasy, will rise and alter his position. He sleeps little, and in his sleep seems to hear as acutely as if awake, and he may be frequently heard to whimper when asleep. If his excrements fall on vegetables, they generally destroy them, and the same may be said of his urine, which will cause leather to rot. The dog, however, is very particular in his choice of places, and mostly throws his dung where it can do no injury: thistles, high stones, and the roots of trees, seem to be his favorite resorts for this purpose. Till he is a year old he crouches his hinder parts to eject his urine; but after the age of twelve months he throws it out sideways, by raising his leg against a wall, tree, &c. and whenever he comes to a place where another dog has ejected, he never fails to do the same: indeed, he seldom or never passes a spot to which he has been accustomed without paying it the usual compliment. A dog soon

acquires the knowledge of his name, and will answer to it though it comes from a stranger's mouth. Names for dogs or bitches are according to fancy; in like manner, names are given to horses and mares: it is, therefore, ridiculous to swell out a work of this nature with a list of chosen epithets, and proper appellations.

THE WILD DOG,

Such as he was before he was domesticated by man, is at present utterly unknown, yet many, from a domestic state, when abandoned or lost by their masters, in foreign countries, have turned savage, and entirely pursue the dictates of nature. They are, however, easily tamed: if taken home and treated with kindness they quickly become submissive and familiar, differing, in this respect, from the fox and the wolf, who, though taken ever so young, are gentle only while cubs, and as they grow older give themselves up to their natural appetites of rapine and cruelty.

The varieties of this animal are numerous: climate, food, education, and other circumstances, make strong impressions upon him, and produce alterations in the size and figure of the body, in the length of the nose, in the shape of the head, in the length and direction of the ears and tail, in the colour, the quantity and quality of hair: in short, the faculty of being all capable of engendering together, renders no particular species in the aggregate of varieties thus produced constant or invariable. On this account dogs are supposed to have been originally of one kind, and Buffon, Goldsmith, and other eminent naturalists suppose

THE SHEPHERD's DOG

To have been the stem from whence all the present numerous branches have sprung. This is a very common dog, with long coarse hair, pricked ears, a long nose; and takes his name from being principally employed in guarding and attending sheep. Peculiar circumstances, indeed, authorise the belief of this being the primitive canine animal. In countries still savage, or but half civilized, the most prevailing kind of dogs resembles the shepherds. The wild dogs in America and Congo approach this form. A stronger similitude to the shepherd's dog appears in those of Siberia, Lapland, and Iceland, the Cape of Good Hope, Madagascar, Calicut, and Malabar, they having all a long nose and pricked ears. In Guinea the dog very speedily takes this form; at the second or third generation he forgets to bark, his ears and his tail becomes pointed, and his hair drops off, while a thinner and coarser kind supplies its place. The shepherd's dog, when removed from a savage state, and transported into temperate climates, will soon be divested of its ferocious air, his pricked ears, his rough, long, and thick hair, and will produce a different offspring. This species, however, abounds in mild countries, particularly among those who prefer utility to beauty.

But it may be asked, if the shepherd's dog were the original species, whence proceeded all the different branches, or how were ever the present varieties propagated? The ancients asserted that the wolf and dog would breed together, and some modern writers are of the same opinion. The celebrated John Hunter declared, that the jackall and

the fox, as well as the wolf, would engender with the dog. Mr. Thornhill has supported this doctrine. Buffon, the French naturalist, however, has contradicted it, because all his endeavours to induce the dog and the wolf, or the dog and the fox, to engender had been ineffectual. But numberless experiments are required for decisive proofs; they must not only be long separated from their own species, before genial desire can be excited, but various dispositions and climates must be tried. There have been, it is well known, instances of more unnatural connections than these, but the non-frequency of them renders them incredible. As the shepherd's dog is, in Buffon's opinion, the original stem, doubtless the ancients were more fortunate in their experiments than he was

THE MASTIFF.

This dog is said to be a mongrel generated between the Irish grey-hound and the bull-dog; and thought to be an immediate descendent of the shepherd's dog. This, however, is all conjecture; and when it is considered that the mastiff is a more dignified, stately, and attracting object than either of his supposed parents, and that so far back as the time of the Roman emperors the mastiffs of Great Britain were noted for their innate courage and instinctive ferocity, we may, with greater probability of truth, esteem them a distinct breed, and chiefly natives of England. This dog is principally kept for the protection of large and extensive premises, and he is so forcibly impressed with the magnitude of his charge, that only the loss of life can deprive him of the trust which is placed under his care. Notwithstanding his terrific appearance, and menacing looks to strangers, he is, to his master and friends, as mild in his manners, and as grateful and solicitous of attention, as the most diminutive of the canine race. Their ferocity can always be increased or diminished by the degree of restraint in which they are kept; Those constantly chained are more dangerous to approach than those which are accustomed to their liberty. During his nocturnal guard the mastiff gives notice of the least alarm, as it is the peculiar practice of this dog always to bark before he bites. The genuine old English mastiff is rarely to be seen, as the breed has been contaminated by various intermixtures. In its original state the mastiff is far superior in height, size, bone, and strength, to the bull-dog: the ears more pendulous; the countenance commanding, and the eyes fiercely expressive.

THE BULL DOG,

So called from its natural antipathy to the bull, and formerly held in high estimation for the cruel and vulgar sport of bull-baiting. This particular race is acknowledged to have been a native of Britain, and to have stood in an equal degree of originality with the shepherd's dog and the Irish greyhound. Though placidly serene and inoffensive in a state of domestication, still it bears a most terrific appearance; a suspicious and designing leer; a tiger-like shortness of the head; a ferocious under-hung jaw; a corresponding width of the forehead; a distension of the nostrils, and an almost constant exhibition of the teeth. This breed is not so numerous, or

so nicely attended to as formerly, on account of the decline of bull-baiting, a once favorite but inhuman amusement, productive of serious consequences, and which has been the occasion of a great number having been purchased for transportation to other countries, for which enormous prices have been given. The bull-dog, unlike the mastiff, always bites before he barks; and such is this animal's ferocity, and thirst of blood, that when once exasperated by his opponent, or encouraged by his master, no pain or punishment will prevent him from pursuing, and endeavouring to subdue, the object of his resentment.

When bull-baiting was more in fashion than it is, an amateur of this "sublime and beautiful" amusement proposed a wager, "that he would, at four distinct intervals, deprive the animal of one of his feet by amputation, and that, after every individual deprivation, he should attack the bull with his previous ferocity, and continue to do so on his stumps." This shocking experiment was made, and the inhuman master won a trifling wager: this is an authenticated fact.

Some years ago, a bull-dog was exhibited that would jump through a balloon of fire, surrounded with fire-works. The bull, when master of his horns (of which he used to be deprived, in order to render the amusement more *gratifying*) is capable of giving his antagonist severe tosses.

Dogs frequently supply the place of horses in foreign regions: numerous packs are used for draughts, particularly by the Kamptshadales, and the Ostiaks, by the eastern Samoyedes, the Tunguses, and by some stems of the Mandshuses; an employment to which they are destined even amongst the Russians in the government of Irkutsk, where, in some places, they are used instead of post-horses: the chief of these dogs is supposed to be a descendant of

THE WOLF-DOG,

Which is a native of Pomerania, and there called the Pomeranian dog. In England the wolf-dog is more familiarly known by the name of the fox-dog, by the affinity which he bears to that animal about the head.

The Kamptshadale dog (where the breed of this animal is of great importance) is, in size and shape, little different from the large Russian boor-dog, but his manners are almost totally changed by the course of diet, training, and treatment. These dogs are held to be the best and most long-winded runners of all the Siberian dogs; and their spirit is so great that they frequently dislocate their joints in drawing, and their hair is often tinged with red from the extravasation of blood, occasioned by violent exertions: they possess so much strength that four of them (which are commonly harnessed to a sledge) will draw, with ease, three full grown persons, with a pood and a half of luggage. The ordinary loading of four dogs amounts to five or six poods, and a single man can, in this manner, in bad roads, go thirty or forty, but in good roads from eighty to one hundred and forty versts in a day. The deep snow which the dogs run over without breaking in, the steep mountains and narrow passes in the vallies, the thick impassable forests, the numerous streams and brooks that are either not at all, or but slightly, frozen over,

and the storms which drift the snow, would prevent the travelling with horses, had they ever so many of them, in winter at least; and it is, therefore, very probable, that the dog, even under the highest pitch of cultivation to which Kamptschatka can attain, would be always the principal and most serviceable animal for draught. Accordingly, the taste for dogs here is as great as for horses elsewhere; and considerable sums are not unfrequently expended in the purchase of them, and on the elegance of their trappings. The choice is generally made of such as have high legs, long ears, a sharp muzzle, a broad crupper, a thick head, and who discover great vivacity.

THE GREENLAND DOG

Also supplies the place of a horse, and is of wolfish descent. This breed are generally beyond the line of mediocrity in size, are usually white, with a black face, not unfrequently piebald, rarely all brown or black, but sometimes entirely white; they have sharp noses, hair thick and wavy, inclining to a twisty curl, short ears, and an oblique curvature in the tail. They swim most admirably, and will hunt individually, or in a body, the Arctic fox, seals on the ice, and the Polar bear; they are universally admitted to be exceedingly fierce, and, in the manner of wolves, fly upon any of the few domestic animals which have been carried into that country. The natives always travel in sledges, which are drawn by these dogs. The length of the body of the sledge is about four feet and a half, and the breadth one foot; it is made in the form of a crescent, of light tough wood, fastened together with wicker work; and those of the principal people are elegantly stained with red and blue, the seat being covered with furs, or bear-skins. It has four legs, about two feet in height, resting on two long flat pieces of wood, of the breadth of five or six inches, which extend a foot beyond the body of the sledge at each end. These turn up before, something like a skait, and are shod with the bone of a sea animal; the carriage is ornamented at the fore-part with tassels of coloured cloth and leather thongs; it has a cross-bar, to which the harness is joined, and links of iron, or small bells, are hanging to it, which, by the jingling, is supposed to encourage the dogs. They seldom carry more than one person at a time, who sits aside, with his feet on the sledge, having his baggage and provisions in a bundle behind him. The usual number of dogs employed in drawing this carriage is four, but five are occasionally used. The reins being fastened to the collar instead of the head, have no great command, and are, therefore usually hung upon the sledge, the driver depending principally upon their obedience to his voice. Great care and attention are necessary in training up the leader, which, consequently, becomes valuable on account of his steadiness and docility. The driver has also a crooked stick, answering the purpose of both whip and reins, and which, by striking in the snow, he can regulate the speed of the dogs, or stop them at pleasure. When they are inattentive to their duty he often chastises them, by throwing it at them, but recovers the stick with wonderful dexterity.

Though dogs may be seen at harness in

all parts of the Hague, tugging at barrows and little carts: in other places they are doomed to lead a more inactive life; some are supported for no other purpose than external parade, to run before or after the equipages of their lords or ladies; the most famous of this sort is

THE DALMATIAN,

Said to have been originally natives of Dalmatia, a district in European Turkey, bounded on the west by the gulf of Venice, and from whence, it is presumed, the breed was formerly transported to France, England, &c. The sole destination of the Dalmatian is the individual attendance upon, and the protection of, the horses and carriage to which he belongs. He always contributes to the splendour of a stable establishment, and the carriage is never brought into use without his appearing in his official capacity; his attendance upon the horses, when in a state of inactivity, and his exulting consciousness of dignity in preceding the carriage, constitute his whole employ and happiness. This is a pretty spotted animal, and the most inoffensive of the canine race.

ON THE DIFFERENT BREEDS OF DOGS USED IN THE CHASE.

The great variety of hounds with which the country formerly abounded, has been, by experimental crosses of succeeding generations, considerably reduced, and now consists of five distinct kinds, individually appropriated to the pursuit of the stag, the fox, and the hare, and known by the names of stag-hounds, fox-hounds, harriers, greyhounds, and beagles: the terrier is also occasionally employed.

STAG-HOUND.

This majestic animal is the largest and most powerful of all the different sizes of that species of dogs, distinguished by the sporting appellation of hounds. It possesses a countenance dignified and serene, and is exceedingly high in estimation. Naturalists of the first celebrity have considered the hound, harrier, turnspit, water-dog, and spaniel, to have been of the same race, as they differ only in the length of their legs, and size of their ears. The stag-hound, now in use for the pursuit of deer, originated from the fox-hound and the blood-hound. The original stock of blood-hounds exceeded

in size, strength, and courage, every other kind of hound in existence: they were seldom brought into the chase, or employed in the sports of the field, but kept entirely for the purposes of detection. Indeed, in less enlightened times, a degree of fabulous certainty was ascribed to them in the pursuit and seizure of murderers, robbers, and depredators; but their success entirely depended upon their being laid with expedition upon the scent, or footsteps, of the offender, whom it was deemed expedient thus to hunt.

The blood-hound, according to literary records, was from seven to twenty inches high, of substantial and muscular form; the face wide upon the forehead, gradually narrowing to the nose; the countenance expressive; the nostrils expansive; the ears large, soft, and pendulous, broad at the base, and narrowing to the tip; the tail long, with an erective curve, particularly when in pursuit, and the voice awfully loud and deep. This breed is still preserved, and held in the highest estimation, in Cuba and other islands; and, like horses, have been brought into the field of battle, particularly in the late Maroon wars. The great and distinguished peculiarity of the blood-hound to our sporting predecessors was, his infallibility in tracing to its final resort any animal that had been taken on for a mile or two; the dog having been led to the spot from whence it had been previously drawn, and there encouraged to enjoy, and carry on the scent: let it be observed, however, that this preclusive ceremony took place, accompanied with a seasoned, staunch, old hound, from whose age and experience the newly entered dog derived knowledge and assistance during the drag-chase; and, at its termination, they were regaled with the venison they had hunted, as a reward for their labour, and an excitement to future service.

When blood-hounds were in general use in this kingdom, deer stealing was such a prevalent crime, that the forest and park-keepers were chiefly employed in perpetual watching, and nocturnal warfare: these hounds were then so regularly trained and accustomed to the practice, that when once laid upon the scent, they closely and invariably adhered to it, and though tedious and difficult the pursuit, detection was inevitable. From this infallible instinct they acquired the name of *blood-hounds*.

From the best authorities, we find that the sports of the chase are of ancient date; but the pages of history do not transmit the exact period of the progressive ages in which hunting had attained its present state of unprecedented perfection. A writer of some celebrity has observed, that the original ardour for prey has formed an union between the dog, the horse, the falcon, and man. This association will, no doubt, be permanent; yet the pleasures of hunting have been censured, and deemed barbarous, by those who possess or affect nice and refined feelings; but let those punctilious moralists recollect, that this recreating diversion is authorised by the sacred scriptures. In the twenty-seventh chapter of Genesis we find that Esau was accustomed to hunt for venison; he took "his weapons, his quiver, and his bow, and went out to the field, and obtained it." Hence it appears, that hunting was a practice in the primitive ages, and though originally assumed as a natural right,

yet there is scarcely a country that has not found it necessary to restrain by laws this disposition, lest it should be followed with an avidity injurious to individuals, as well as to the general interests of society. The liberty of the chase has, therefore, had restrictions introduced from almost the earliest ages; and kings and princes have successively augmented their assumed rights in hunting, and, at length, excluded their nobles and dependants from this privilege, unless permission be granted under certain conditions. In the days of Canute, the hunting or coursing a royal stag by a freeman, was punished with the loss of liberty for a year; and if by a bondman, he was outlawed. So severe were the forest-laws introduced by William the Conqueror, that the death of a beast of chase was deemed equally criminal with the murder of a man; and among other punishments for offences against these laws (which were afterwards repealed by Richard I.) were, castration, loss of eyes, and cutting off both hands and feet. Queen Elizabeth was rapturously fond of the chase, and frequently followed the hounds, as remarked in Mr. Roland White's letter to Sir Robert Sidney, wherein he observed, that "her majesty is well and excellently disposed to hunting, for every second day she is on horseback, and enjoys the sport long."

The stag was originally subdued by the aim and strength of man alone. When hounds were introduced, the stag was hunted (as the writings of Ovid, &c. testify) by large bodies of them; but, in the course of time, experience diminished their number. Queen Elizabeth kept buck-hounds, stag-hounds, (then called hart-hounds) harriers, and otter-hounds. Very few are now kept solely for this amusement. The greatest inducement to stag-hunting, in preference to any other, is the invariable certainty of a good run; but though a royal sport, it is deemed by many too severe and arduous; it is exceedingly laborious to the horse, and, in a variety of cases, equally so to the rider: difficulties frequently occur which require great exertions in one, and no small share of fortitude in the other.

THE FOX-HOUND

This animal, after a long succession of experiments, in crossing and re-crossing the different breeds, seems now to have attained the criterion of perfection; it is the opinion of a celebrated sportsman, that there are necessary points in the shape of a fox-hound, which ought always to be attended to; for if he be not of perfect symmetry, he will neither run fast nor do much work; having a great deal to undergo, he should have strength proportioned to the task: his legs should be straight as arrows; his feet round, and not too large; his shoulders back; his breast rather wide than narrow; his chest deep; his back broad; his head small; his neck thin; his tail thick and bushy, and if he carry it well so much the better.

The great attention, during the last sixty years, in the breed of hounds, has been to adapt the size and qualifications of the pack to the game they have to pursue; and, according to modern improvement, this breed is now so fleet, and remarkable for celerity, that they kill their fox in half the time the old packs were enabled to do.

Fox-hunting has been, for time immemorial, a favorite sport with the natives of this country, particularly during the prime of life, Great Britain having been always famous for the best horses and the best hounds. This exhilirating exercise, of both body and mind, contribute greatly to the enjoyment and preservation of health; for it is productive not only of superlative gratification, but of salutary effects to youth. The persevering speed and fortitude of the game, the constantly improving excellence of the hounds, the invincible spirit of the horses, and the unrestrained ardour of their juvenile riders, have given it a decided superiority over every other sport or amusement; and it is a fact, that some of the most opulent and the most illustrious characters throughout the kingdom are principally and personally engaged in this delightful amusement.

From the number of years so emulously employed by sporting amateurs in the improvement of this breed, we may naturally conclude, that it has now attained the summit of perfection, and that no country in Europe can boast of fox-hounds equal in strength, agility, and speed, to those of Great Britain. The very climate is congenial to their nature, for it is universally known and acknowledged, that when hounds, the produce of England, are transported to France, or sent into other countries, they gradationally degenerate, and are soon perceptibly divested of all the predominant facilities for which they had been so justly celebrated when at home. "A fox-chase is not easy to be described," says Mr. Beckford We shall, however, give an extract of that gentleman's description of the pursuit and death of a fox.

"The hour in the morning most favorable to the diversion is certainly an early one; the hounds should be at the cover at sun rising.

"———————— Delightful scene!
Where all around is gay, men, horses, dogs;
And in each smiling countenance appears
Fresh blooming health, and universal joy.

"Now let your huntsman throw in his hounds as quietly as he can, and let the two whippers-in keep wide of him on either hand, so that a single hound may not escape them; let them be attentive to his halloo, and be ready to encourage, or rate, as that directs; he will, of course, draw up the wind. Now, if you can keep your brother sportsmen in order, and put any discretion into them, you are in luck; they more frequently do harm than good: if it be possible, persuade those who wish to halloo the fox off, to stand quiet under the cover side, and on no account to halloo him too soon: if they do, he most certainly will turn back again: could you entice them all into the cover, your sport, in all probability, would not be the worse for it.

"How well the hounds spread the cover! the huntsman you see is quite deserted, and his horse, which so lately had a crowd at his heels, has not now one attendant left. How steadily they draw! you hear not a single hound; yet none are idle. Is not this better than to be subject to continual disappointment, from the eternal babbling of unsteady hounds?

" ——————— See! how they range
Dispers'd, how busily this way and that
They cross, examining, with curious nose,
Each likely haunt. Hark! on the drag I hear
Their doubtful notes, preluding to a cry
More nobly full, and swell'd with every mouth.

How musical their tongues!—Now as they get nearer to him, how the chorus fills! Hark! he is found.—Now, where are all your sorrows, and your cares, ye gloomy souls! Or where your pains and aches, ye complaining ones! one halloo has dispelled them all.—What a crash they make! and echo seemingly takes pleasure to repeat the sound. The astonished traveller forsakes his road, lured by its melody; the listening ploughman now stops his plough; and every distant shepherd neglects his flock, and runs to see him break. What joy! what eagerness in every face!

" How happy art thou, man, when thou'rt no more
Thyself! when all the pangs that grind thy soul,
In rapture and in sweet oblivion lost,
Yield a short interval, and ease from pain!

"Mark, how he runs the cover's utmost limits, yet dares not venture forth; the hounds are still too near.—That check is lucky; now, if our friends head him not, he will soon be off—hark! they halloo: by Jove he's gone.

" ——————— Hark! what loud shouts
Re-echo thro' the groves! he breaks away
Shrill horns proclaim his flight. Each straggling hound
Strains o'er the lawn to reach the distant pack.
'Tis triumph all, and joy!

"Now, huntsman, get onwith the head hounds; the whipper-in will bring on the others after you: keep an attentive eye on the leading hounds, that, should the scent fail them, you may know at least how far they brought it.

"Mind *Galloper*, how he leads them!—It is difficult to distinguish which is first, they run in such a style; yet *he* is the foremost hound—The goodness of his nose is not less excellent than his speed:—How he carries the scent! and when he loses it, see how eagerly he flings to recover it again.—Ther—now he's at head again—see how they top the hedge!—Now, how they mount the hill!—Observe what a head they carry; and shew me, if you can, one shuffler or skirter amongst them all: are they not like a parcel of brave fellows, who, when they undertake a thing, determine to share its fatigue and its dangers equally amongst them.

" ——— Far o'er the rocky hills we range,
And dangerous our course; but in the brave
True courage never fails. In vain the stream
In foaming eddies whirls, in vain the ditch
Wide-gaping threatens death. The craggy steep,
Where the poor dizzy shepherd crawls with care,
And clings to every twig, gives us no pain;
But down we sweep, as stoops the falcon bold
To pounce his prey. Then up th' opponent hill,
By the swift motion slung, we mount aloft:
So ships in winter seas now sliding sink
Adown the steepy wave, then toss'd on high
Ride on the billows, and defy the storm.

"It *was* then the fox I saw as we came down the hill;—those crows directed me which way to look, and the sheep ran from him, as he passed along. The hounds are now on the very spot, yet the sheep stop them not, for they dash beyond them. Now see with what eagerness they cross the plain.—*Galloper* no longer keeps his place, *Brusher* takes it; see how he flings for the scent, and how im-

petuously he runs!—How eagerly he took the lead, and how he strives to keep it; yet *Victor* comes up apace.—He reaches him!—See what an excellent race it is between them!—It is doubtful which will reach the cover first.—How equally they run;—how eagerly they strain;—now *Victor*,—*Victor*!—Ah! *Brusher*, you are beat; *Victor* first tops the hedge.—See there; see how they all take it in their strokes! the hedge cracks with their weight; so many jump at once.—Now hastes the whipper-in to the other side the cover; he is right, unless he head the fox.

"Heav'ns! what melodious strains! how beat our hearts
Big with tumultuous joy! the loaded gales
Breathe harmony; and as the tempest drives
From wood to wood, thro' ev'ry dark recess
The forest thunders, and the mountains shake.

"Listen!—the hounds have turned. They are now in two parts: The fox has been headed back, and we have changed at last.

"Now, my lad, mind the huntsman's halloo, and stop to those hounds which he encourages.—He is right;—that, doubtless, is the hunted fox;—Now they are off again.

"What lengths we pass! where will the wand'ring chase
Lead us bewilder'd! smooth as swallows skim
The new-shorn mead, and far more swift we fly.
See my brave pack; how to the head they press,
Jostling in close array; then more diffuse
Obliquely wheel, while from their op'ning mouths
The vollied thunder breaks.
——————— Look back and view
The strange confusion of the vale below,
Where sore vexation reigns;———
——————— Old age laments
His vigor spent: the tall, plump, brawny youth
Curses his cumbrous bulk; and envies now
The short pygmean race, he whilom kenn'd
With proud insulting leer. A chosen few
Alone the sport enjoy, nor droop beneath
Their pleasing toils."

"Ha! a check.—Now for a moment's patience.—We press too close upon the hounds.—Huntsman, stand still: as yet they want you not.—How admirably they spread! how wide they cast! is there a single hound that does not try? if such a one there be, he ne'er shall hunt again. There, *Trueman* is on the scent; he feathers, yet still is doubtful; 'tis right! how readily they join him! See those wide-casting hounds, how they fly forward to recover the ground they have lost! Mind *Lightning*, how she dashes; and *Mungo*, how he works! Old *Frantic*, too, now pushes forward; she knows, as well as we, the fox is sinking

"——————On! yet she flies, nor yields
To black despair. But one loose more, and all
His wiles are vain. Hark! thro' yon village now
The rattling clamour rings. The barns, the cots,
And leafless elms return the joyous sounds.
Thro' ev'ry homestall, and thro' ev'ry yard,
His midnight walks, panting, forlorn, he flies;
——————— Th' unerring hounds
With peals of echoing vengeance close pursue.

"Huntsman! at fault at last?—How far did you bring the scent?—Have the hounds made their own cast?—Now make yours. You see that sheep-dog has been coursing the fox;—get forward with your hounds, and make a wide cast.

"Hark! that halloo is indeed a lucky one.—If we can hold him on, we may yet recover him; for a fox, so much distressed, must stop at last. We now shall see if they will

hunt, as well as run; for there is but little scent, and the impending cloud still makes that little less. How they enjoy the scent; see how busy they all are; and how each in his turn prevails

"Huntsman! be quiet! Whilst the scent was good, you pressed on your hounds;—it was well done. Your hounds were afterwards at fault;—you made your cast with judgment, and lost no time. You now must let them hunt;—with such a cold scent as this, you can do no good.—They must do it all themselves;—Lift them now, and not a hound will stop again.—Ha! a high road at such a time as this, when the tenderest-nosed hound can hardly own the scent!—Another fault! That man at work, then, has headed back the fox.—Huntsman! cast not your hounds now, you see they have over-run the scent; have a little patience, and let them, for once, try back.

"We now must give them time;—see where they bend towards yonder furze brake; I wish he may have stopped there. Mind that old hound, how he dashes o'er the furze; I think he winds him;—Now for a fresh *entapis*:—Hark; they halloo:—Aye, there he goes.

"It is near over with him; had the hounds caught view he must have died.—He will hardly reach the cover;—see how they gain upon him at every stroke! It is an admirable race; yet the cover saves him.

"Now be quiet, and he cannot escape us; we have the wind of the hounds, and cannot be better placed;—how short he runs!—he is now in the very strongest part of the cover.—What a crash! every hound is in, and every hound is running for him. That was a quick turn!—Again another!—he's put to his last shifts.—Now *Mischief* is at his heels, and death is not far off.—Ha! they all stop at once;—all silent, and yet no earth is open. Listen!—now they are at him again.—Did you hear that hound catch view? they had over-run the scent, and the fox had lain down behind them. Now, *Reynard*, look to yourself. How quick they all give their tongues!—Little *Dreadnought*, how he works him! the terriers, too, they now are squeaking at him. How close *Vengeance* pursues? how terribly she presses! it is just up with him.—Gods! what a crash they make; the whole wood resounds.—That turn was very short.—There—now;—aye, now they have him.—Who-hoop."

When packs are unreasonably large, the hounds cannot have sufficient employment; and, consequently, become riotous, and of little utility. Few sportsmen wish to hunt every day; and even if they were so inclined, they must occasionally be prevented by unfavorable weather. Hounds, to be good, must be kept constantly hunted; and young hounds should never be left at home as long as they are able to hunt. When too many are kept, the sportsman must either take out a very large pack, or leave a great number behind; these alternatives will be found equally inconvenient; too many hounds in the field will be apt to spoil sport; and hounds that remain long unemployed always get out of wind. From thirty-five to forty couple are sufficient: with these the field may be taken three or four times a week; and, probably, more foxes killed than with a greater number.

The following recorded facts will suffi-

ciently ascertain the wonderful speed of fox-hounds:—

"A match was made between Mr. Meynell and Mr. Barry, to run a couple of each others' hounds a drag, from the rubbing-houses at Newmarket town-end to the rubbing-house at the starting-post of the Beacon-course, for five hundred guineas. The famous Will Crane was applied to, to train Mr. Barry's hounds, of which *Bluecap* was four, and *Wanton* three years old. Crane first objected to their being hounds that had been entered, and wished for young hounds, who might, probably, be taught with more certainty to run a drag: his motion, however, was set aside, and the hounds were sent to Rivenhall, in Essex; and, as Crane suggested, at the first trials to induce them to run a drag, they took no notice: at length, by dragging a fox along the ground, and then crossing the hounds upon the scent, and taking care to let them kill him, they became more handy to a drag; and had them exercised regularly three times a week, upon Tiptree-heath: the ground chosen was turf, and the distance over which it was taken was from eight to ten miles. The dogs were in training for one month; their food consisting of oatmeal, milk, and boiled sheeps' trotters. At length, the drag was drawn over the distance previously agreed on, and the four hounds laid on the scent. Mr. Barry's *Bluecap* came in first; *Wanton* very close to *Bluecap*, second. Mr. Meynell's *Richmond* was beat by upwards of one hundred yards, and the bitch never run in at all: the ground was crossed over in eight minutes and a few seconds, threescore horses having started with the hounds. Cooper, Mr. Barry's huntsman, was the first up, but the mare he rode was completely blind at the conclusion. There were only twelve horses up out of the sixty; and Will Crane, who was mounted upon *Rib*, a king's plate horse, was only in the twelfth. The odds before starting were seven to four in favor of Mr. Meynell, whose hounds, it is said, were fed, during the time of training, entirely with legs of mutton

"A famous bitch, called *Martin*, once the property of Colonel Thornton, having run a private trial of four miles, in seven minutes and half a second, was challenged to run any hound of her year five miles over Newmarket, giving two hundred and twenty yards, for ten thousand guineas; or to give *Madcap* a hundred yards, and run the same distance for five thousand. *Martin* was sold in 1795 for four hogsheads of claret, and the seller to have two couple of her whelps. *Madcap*, at two years old, challenged all England for five hundred guineas. *Lounger*, brother to *Madcap*, did the same at four years old: the challenge was accepted, and a bet made for two hundred guineas, to run Mr. Meynell's *Pillager:* the parties were also allowed, by Colonel Thornton, to start any other hound of Mr. Meynell's, and *Lounger* was to beat both; but upon *Lounger's* being seen at Tattersal's, by many of the first sportsmen, his bone and form were so capital, that it was thought prudent to pay the forfeit, which was done by giving a pair of good couples to Colonel Thornton. In May, 1788, *Lounger* received forfeit of Mr. Tattersal, who had named Mr. Meynell's *Ravager* to run four miles for two hundred guineas. *Lounger* also received forfeit in

1787, from Mr. Sturt's *Cryer,* to run four miles for one thousand guineas. By a challenge in the turf-betting room at Tattersal's, January, 1788, he was offered to run any hound in England, from four to six miles, for two thousand guineas, half forfeit. This not having been accepted by the 4th of June, he was then, by the Green Seal Club, honored by the distinguished appellation of *Conqueror,* and was afterwards sent as a present to his late grace the Duke of Northumberland, and was deemed the most swift and perfect hound which any country ever produced.

Bag-foxes are seldom productive of good sport: Mr. Beckford has thus expressed his strong objections to them:—"The scent of them is *different* from that of other foxes: it is *too good,* and makes hounds idle; besides, in the manner in which they generally are turned out, it makes hounds very wild. They seldom fail to know what you are going about before you begin, and if often used to hunt bag-foxes, will become riotous enough to run any thing. A fox that has been confined long in a small place, and carried out many miles, perhaps in a sack, his own ordure hanging about him, must needs stink extravagantly. Add, also, to this account, that he most probably is weakened for want of his natural food and usual exercise, his spirit broken by despair, and his limbs stiffened by confinement; he then is turned out in open ground, without any point to go to: he runs down the wind, it is true, but he is so much at a loss all the while, that he loses a deal of time in not knowing what to do; while the hounds, who have no occasion to hunt, pursue as closely as if they were tied to him.

"Bag-foxes always run down the wind: such sportsmen, therefore, as choose to turn them out, may, at the same time, choose what country they shall run. Foxes that are found do not follow this rule invariably. Strong earths and large covers are great inducements to them, and it is no inconsiderable wind that will keep them from them."

In breeding up cubs, a fox-court is necessary: "they should be kept there till they are large enough to take care of themselves. It ought to be open at the top, and walled in; it must be every way well secured, and particularly the floor of it, which must be either bricked, or paved. A few boards fitted to the corners will also be of use to shelter and to hide them. Foxes ought to be kept very clean, and have plenty of fresh water; birds and rabbits are their best food; horse-flesh might give them the mange, for they are subject to this disorder.

"When cubs are bred in an earth near hand, by adding two or three to the number, it is probable that the old fox will take care of them. This is certain, if they live, they will be good foxes; for the others will shew them the country. Those turned into an earth should be regularly fed. If once neglected, it is probable they will forsake the place, wander away, and die for want of food. When the cubs leave the earth (which they may soon do) the game-keeper should throw food for them in parts of the cover where it may be most easy for them to find it: and when he knows their haunt, he should continue to feed them there. No-

thing destroys so much the breed of foxes, as buying them to turn out, unless care be taken of them afterwards."

A fox-court is of great use; it should be airy, or the cubs should not be kept long. Mr. Beckford turned out one year ten brace of cubs; most of which, by being kept till they were tainted before they were turned out, were found dead in the covers, with scarce any hair upon them, whilst a brace which had made their escape, by making a hole in the sack in which they were brought, lived, and showed excellent sport. The weather being remarkably hot, those that he kept in his fox-court (then a very close one) all died of the same disorder: a fox, once tainted, seldom or never recovers. When cubs are large, they should be turned out immediately; a large earth will be best for that purpose, when they should be regularly fed with rabbits, birds, or sheeps' henges. Buying foxes is a great injury to fox-hunting: in some hunts it is the constant employment of one person to watch the earths at the breeding time, to prevent the cubs from being stolen. Furze covers cannot be too much encouraged for that reason, for then they are safe; they are certain places to find in: foxes cannot break from them unseen, and they are not so liable to change as in other covers.

"In digging a fox, you should keep room enough, and care should be taken not to throw the earth where it must be moved again. In following the hole, the surest way not to lose it, is to keep below it. When the hounds are in want of blood, stop all the holes, lest the fox should bolt out unseen. It causes no small confusion when this happens. The hounds are dispersed about, and asleep in different places; the horses are often at a considerable distance; and many a fox, by taking advantage of this favourable moment, has saved his life.

"If hounds are in want of blood, and they have had a long run, it is the best way, without doubt, to kill the fox pon the earth; but if they have not run long, if the fox be easy to be digged, and the cover such a one as they are not likely to change in, it does the hounds more good to turn him out upon the earth, and let them work for him. It is the blood that will do them most good, and may be serviceable to the hounds, and to the horses. Digging a fox is cold work, and may require a gallop afterwards. Before this, if there be any other earths in the cover, they should be stopped, lest the fox should go to ground again.

"Let the huntsman try all around, and let him be perfectly satisfied that the fox is not gone on before the earth be tried. A fox sometimes runs over an earth, and does not go into it; he sometimes goes in and does not stay; he may find it too hot, or may not like the company he meets with there.

"Huntsmen, when they get near the fox, will sometimes put a hound in to draw him. This is, however, a cruel operation, and seldom answers any other purpose than to occasion the dog a bad bite, the fox's head generally being towards him; besides, a few minutes digging will make it unnecessary.

"If foxes be bred in an earth which is unsafe, *stink* them out: *that*, or indeed a disturbance at the mouth of the hole, will make the old one carry them off to another place.

THE HARRIER.

This hound has derived the general appellation of harrier, from its natural propensity to pursue the hare; yet harriers have been, and still continue to be, of three different kinds, viz. the Northern, or fleet harrier, (now under consideration;) the southern hound; and the beagle: the first originally generated in a double cross between the small beagle, the southern hound, and the dwarf-fox. From the acknowledged excellence of these crosses, the blood still continues to be cultivated in most parts of the kingdom, under the appellation of harriers, to the exclusion of the small beagle, and the southern hound, who were formerly called harriers also. The southern, or old English hound, was undoubtedly the original real-bred harrier of this country, and more particularly in those swampy parts where the chase is, from inclination, protracted, without prolonging the distance. It has been said, indeed, that the breed of southern hounds "which has been gradually declining, and its size studiously diminished by a mixture of other kinds, in order to increase its speed, is now almost extinct." The breed, however, is still in preservation in the low, marshy, and moory countries in Lancashire, and in the neighbourhood of Manchester, and may be distinguished by their heighth; the harrier being remarkable for his mediocrity in size.

The following are Beckford's directions for hare-hunting:—"The hounds most likely to show sport are between the large slow hunting harrier, and the little fox-beagle; one is too dull, too heavy, and too slow; the other too lively, too light, and too fleet. The first, it is true, have most excellent noses, and will kill their game at last if the day be long enough; but the days are short in winter, and it is bad hunting in the dark. The others, on the contrary, fling and dash, and are all alive, but every cold blast affects them; and, if the country be deep and wet, it is not impossible but some may be drowned.

"The huntsman should be quiet, patient, and have infinite perseverance; for a hare should never be given up while it is possible to hunt her; she is sure to stop; and, therefore, may always be recovered."

The whipper-in must not act without the huntsman's orders. "Much noise and rattle is directly contrary to the first principles of hare-hunting, which is to be perfectly quiet, and to let the hounds alone. If they have no one to help them, they have, at the same time, no one to spoil them, which, for this kind of hunting, is more material. There is, however, a fault, and which such hounds, of necessity, must sometimes be guilty of, that is, *running back the heel.* Hounds are, naturally fond of scent; if they cannot carry it forward, they will turn, and hunt it back again: hounds that are left to themselves make a fault of this, and it is the only one they commonly have. Though it is certainly best to let the hounds alone, and thereby give as much scope to their natural instinct as possible, yet, in this particular instance, they should be checked mildly; for, as it is almost an invariable rule in all hunting to make the head good, they should be encouraged to try forward first; which may be done without taking them off their noses, or without the least prejudice to their hunting. If trying forward should not succéed, they

may then be suffered to try back again, which they will all be ready enough to do; for they are sensible how far they brought the scent, and where they left it.

"Harriers, to be good, like all other hounds, must be kept to their own game. If you run fox with them, you spoil them. Hounds cannot be perfect, unless used to one scent, and one style of hunting. Harriers run fox in so different a style from hare, that it is of great disservice to them, when they return to hare again. It makes them wild, and teaches them to skirt. The high scent which a fox leaves, the straightness of his running, the eagerness of the pursuit, and the noise that generally accompanies it, all contribute to spoil a harrier.

"It is a fault in a pack of harriers to go too fast; a hare is such a little timorous animal that we cannot help feeling some compassion for, at the very time when we are pursuing her destruction: we should give scope to all her little tricks, nor kill her foully, and over-matched. Instinct instructs her to make a good defence, when not unfairly treated; and, as far as her own safety is concerned, she has more cunning than the fox, and makes many shifts to save her life, far beyond all his artifice.

"They who like to rise early, have amusement in seeing the hare trailed to her form; it is of great service to hounds; it also shews their goodness to the huntsman, more than any other hunting, as it discovers to him those who have the most tender noses."

Mr. Beckford, however, thinks that hare-hunting should be taken as a ride after breakfast. "Hare-finders, in this case, are necessary: it is agreeable to know where to go for diversion, and not beat about for hours before it is found. It is more material with regard to the second hare than the first, for if the rider be warmed with his gallop, waiting long in the cold afterwards will prove as unwholesome as it will be disagreeable. Whoever does not mind this, had better let his hounds find their own game; they will certainly hunt it with more spirit afterwards, and he will have a pleasure himself in expectation, which no certainty can ever give Hare-finders make hounds idle; they also make them wild. They are, however, of one great use; they hinder hounds from chopping hares, which they, otherwise, could not fail to do.

"Hares are said to foresee a change of weather, and to seat themselves accordingly. This is, however, certain, that they are seldom found in places much exposed to the wind. In inclosures, they more frequently are found near to a hedge, than in the middle of a field. They who make a profession of hare-finding, (and a very advantageous one it is in some countries) are directed by the wind where to look for their game. With good eyes, and nice observation, they are enabled to find them in any weather. You may make forms, and hares will sit in them. It is a common practice with shepherds on the Wiltshire downs; and by making them on the side of hills, they can tell at a distance off, whether there are hares in them or not. Without doubt, people frequently do not find hares from not knowing them in their forms.

"When the game is found, you cannot be too quiet: the hare is an animal so very timorous, that she is frequently headed back, and your dogs are liable to overrun the scent at every instant: it is best, therefore, to keep

a considerable way behind them, that they may have room to turn, as soon as they perceive they have lost the scent; and, if treated in this manner, they will seldom over-run it much. Your hounds, through the whole chace, should be left almost entirely to themselves, nor should they be hallooed too much: when the hare doubles, they should hunt through those doubles; nor is a hare hunted fairly, when hunted otherwise. They should follow her every step she takes, as well over greasy fallows, as through large flocks of sheep; nor should they ever be cast, but when nothing can be done without it.

"———— ——— Let all be hushed,
No clamour loud, no frantic joy be heard;
Lest the wild hound run gadding o'er the plain
Untractable, nor hear thy chiding voice.

"The natural eagerness of the hounds will, at such a time as this, frequently carry even the best of them wide of the scent, which too much encouragement, or pressing too close upon them, may continue beyond all possibility of recovery; this should be always guarded against. After a little while, you have less to fear. You may then approach them nearer, and encourage them more; leaving, however, at all times, sufficient room for them to turn, should they over-run the scent. On high roads, and dry paths, be always doubtful of the scent, nor give them much encouragement; but when a hit is made on either side, you may halloo as much as you please, nor can you then encourage your hounds too much. A hare generally describes a circle as she runs; larger or less, according to her strength, and the openness of the country. In inclosures, and where there is much cover, the circle is for the most part so small, that it is a constant puzzle to the hounds. They have a gordian knot, in that case, ever to unloose; and though it may afford matter of speculation to the philosopher, it is always contrary to the wishes of the sportsman.

"Huntsman! her gait observe: if in wide rings
She wheel her mazy way, in the same round
Persisting still, she'll foil the beaten track.
But if she fly, and with the fav'ring wind
Urge her bold course, less intricate thy task:
Push on thy pack.

"Besides running the foil, they frequently make doubles, which is going forward, to tread the same steps back again, on purpose to confuse their pursuers; and the same manner in which they make the first double, they generally continue, whether long or short. This information, therefore, if properly attended to by the huntsman, may also be of use to him in his casts.

"When they make their double on a high road, or dry path, and then leave it with a spring, it is often the occasion of a long fault: the spring which a hare makes on these occasions is hardly to be credited, any more than is her ingenuity in making it; both are wonderful!

"———— let cavillers deny
That brutes have reason; sure 'tis something more:
'Tis heav'n directs, and stratagems inspire,
Beyond the short extent of human thought.

"She frequently, after running a path a considerable way, will make a double, and then stop till the hounds have passed her; she

will then steal away as secretly as she can, and return the same way she came. This is the greatest of all trials for hounds. It is so hot a foil, that in the best packs there are not many hounds that can hunt it; you must follow those hounds that can, and try to hit her off where she breaks her foil, which in all probability she will soon do, as she now flatters herself she is secure. When the scent lies bad in cover, she will sometimes hunt the hounds.

"——————The covert's utmost bound
Slily she skirts; behind them cautious creeps,
And in that very track, so lately stain'd
By all the steaming crowd, seems to pursue
The foe she flies.——

"When the hounds are at a check, make your huntsman stand still, nor suffer him to move his horse one way or the other: hounds lean naturally towards the scent, and, if he does not say a word to them, will soon recover it.

"In a fine day, good hounds seldom give up the scent at head; if they do, there is generally an obvious reason for it; this observation a huntsman should always make; it will direct his cast. If he be a good one, he will be attentive as he goes, not only to his hounds, nicely observing which have the lead, and the degree of scent they carry, but also to the various circumstances that are continually happening from change of weather, and difference of ground. He will also be mindful of the distance which the hare keeps before the hounds, and of her former doubles, and he will remark what point she makes to. All these observations will be of use, should a long fault make his assistance necessary; and if the hare have headed back, he will carefully observe whether she met any thing in her course to turn her, or turned of her own accord. When he casts his hounds, let him begin by making a small circle; if that will not do, then let him try a larger; he afterwards may be at liberty to persevere in any cast he may judge most likely. As a hare generally revisits her old haunts, and returns to the place where she was first found, if the scent be quite gone, and the hounds can no longer hunt, *that* is as likely a cast as any to recover her. Let him remember this in all his casts, that the hounds are not to follow his horse's heels, nor are they to carry their heads high, and noses in the air. At these times they must try for the scent, or they will never find it, and he is either to make his cast slow, or quick, as he perceives his hounds try, and as the scent is either good or bad

"Let the huntsman prevent the hounds as much as he can from chopping hares. When hounds are used to it, a hare must be very wild, or very nimble, to escape them. In a furzy country, hounds are apt to chop hares, for it is the nature of those animals either to leap up before the hounds come near them, and *steal away*, as it is called; or else to lie close, till they put their very noses upon them. Hedges, also, are very dangerous; if the huntsman beat the hedge himself, which is the usual practice, the hounds are always upon the watch, and a hare must have good luck to escape them all. The best way to prevent it, is to have the hedge well beaten at some distance before the hounds.

"Hares seldom run so well as when they do not know where they are. They run well

in a fog, and generally take a good country. If they set off down the wind, they seldom return; you then cannot push on your hounds too much. When the game is sinking, you will perceive your old hounds get forward; they then will run at head.

"Happy the man, who with unrivall'd speed
Can pass his fellows, and with pleasure view
The struggling pack; how in the rapid course
Alternate they preside, and jostling push
To guide the dubious scent; how giddy youth
Oft babbling errs, by wiser age reprov'd;
How, niggard of his strength, the wise old hound
Hangs in the rear, 'till some important point
Rouse all his diligence, or till the chase
Sinking he finds; then to the head he springs,
With thirst of glory fir'd, and wins the prize.

"Keep no babblers; for though the rest of the pack soon find them out, and do not mind them, yet it is unpleasant to hear their noise; nor are such fit companions for the rest.

"Keep no hound that runs false: the loss of one hare is more than such a dog is worth. It is but reasonable to give the hounds a hare sometimes."

Mr. Beckford always gave the last they killed, if he thought they deserved her.

"It is too much the custom, first, to ride over a dog, and then cry *ware horse*. Take care not to ride over your hounds; I have known many a good dog spoiled by it: in open ground speak to them first; you may afterwards ride over them if you please; but in roads and paths they frequently cannot get out of your way; it surely then is your business, either to stop your horse, or break the way for them, and the not doing it, give me leave to say, is absurd and cruel; nor can that man be called a good sportsman, who thus wantonly destroys his own sport. Indeed, good sportsmen seldom ride on the line of the tail hounds."

THE GREYHOUND

Is of a beautiful and delicate formation for speed and majestic attraction, and, under the ancient name of gazehound, formed one of the earliest dogs of the chase. He was the original companion of royalty in the sports of the field; and in lieu of fines and forfeitures to the crown, King John was wont to accept of gazehounds. The dog of that day was long haired, and somewhat resembling the one used by warreners, but probably larger, and more like the shaggy wolf-dog of former times, than any sporting dog of the present day.

It is observed by the Rev. W. B. Daniel, that the greyhound in ancient times was considered as a very valuable present, and particularly to the ladies, to whom a compliment, so intrinsically estimated, was singularly acceptable.

The deer, fox, and hare, have each been coursed by greyhounds, according to the fashion of the people, and the custom of the times: the two former are now seldom or ever resorted to; but in pursuit of the hare, the energetic velocity of the greyhound still affords delight. In shape, make, and form, it is a beautiful and delicate animal, and is universally allowed to be the fleetest of the canine species.

It is not recorded why, or when, the name of greyhound was adopted, though it is evidently certain, that gazehound was the original name, in allusion to its running by

sight, and not by *scent*. It bore its present appellation in Queen Elizabeth's day, as it is mentioned by Shakspeare:—

"I see you stand, like greyhounds in the slips,
Straining upon the start—The game's on foot."

Various have been the opinions upon the difference of speed between a well-bred greyhound and a blood-horse of some celebrity, if opposed to each other for a mile, or for any greater, or shorter distance. It has, by the most experienced judges, been thought, that upon a flat a horse of this description would prove superior to the greyhound, for either an extended, or a contracted distance; but that in a hilly country, the greyhound would have an evident advantage. Many sporting characters had repeatedly indulged their wishes for a trial, but, after a variety of unavailing propositions, the following circumstance took place, in the month of December, 1800, when a match was to have been run over Doncaster course for one hundred guineas; but one of the horses having been drawn, a mare was started alone, that by running the ground she might insure the wager: having run about one mile in the four, she was accompanied by a greyhound bitch, who joined her from the side of the course, and emulatively entering into the competition, continued to race with the mare the other three miles, keeping nearly head and head, affording an excellent treat to the field, by the energetic exertions of each. At passing the distance-post, five to four was betted in favor of the greyhound; when parellel with the stand, it was even betting, and any person might have taken his choice for five or ten; the mare, however, had the advantage by a head at the termination.

No obstacles whatever can restrain the invincible ardor and determined progress of the greyhound; its energetic velocity in pursuit of game, has always been matter of astonishment to the lovers of sport; and notwithstanding its natural simplicity and peaceable demeanour, it is remarkable for fidelity, sagacity, and courage.

A greyhound, named *Rajah*, the property of a gentleman in the county of Hertford, having supported a very long course, and turned the hare at least a dozen times, killed her single-handed, but was so completely exhausted, that he lay panting by her side. In this situation he was observed by two countrymen, who, (the master not being in sight,) were determined to secure the hare; but upon getting near with the intent to seize her, the greyhound suddenly sprung up, took the hare in his mouth, and set off the way he came, the fellows pursuing, with sticks and stones; when, meeting his master, he laid the hare at his feet, and immediately turning round, flew at the men, but being weak with his successive exertions he again dropped, as if dead. By bleeding and proper attention he afterwards recovered.

While Lord Egremont's game-keeper was leading a brace of greyhounds in couples, (1792) a hare accidentally crossed the road in view; unable to resist this great temptation, they, in a joint effort, suddenly broke from their conductor, and gave chase, shackled as they were together, to the great entertainment of those who were spectators of the novel scene. When they got up and gave the hare the first turn, it was evidently much

to her advantage, as the greyhounds were so embarrassed, it was with great difficulty they could change their direction: notwithstanding this temporary procrastination, they sustained no diminution of natural energy; but continued the course through and over various obstructions, &c. After a course of between three and four miles, the object of pursuit fell a victim to their perseverance near Pikeless gate. A similar circumstance took place about the year 1794. Another instance of the perseverance of this animal occurred in 1797, when a brace of greyhounds coursed a hare over the edge of a chalk-pit, at Offham, in Sussex; but, upon the company approaching the spot, both hare and greyhounds were found dead at the bottom, the latter having plunged down the fatal precipice after their game. Similar accidents have frequently happened, which may be chiefly ascribed to the velocity of the animal, whereby it is rendered incapable of suddenly checking itself.

The greyhound of a clergyman, who was delayed at Dover in waiting for a wind, was taken by his master and a small party in search of a hare of some local notoriety, who had previously escaped pursuers of every description; when found, the greyhound soon proved himself so superior in speed, that she instantly ran for the cliff, as the only chance of escaping; but, throwing himself at her some yards, with the most incredible and determined ferocity, he caught her exactly upon the brink, and, unfortunately, went with her in his mouth to the bottom, where they were both dashed to pieces.

In 1794, a hare having been unexpectedly started at Finchingfield, in Essex, a brace of greyhounds, coming in opposite directions, ran against each other with such violence that both were killed on the spot.

Some doubts have been entertained, whether the instinctive sagacity of this particular race is equal to others of a different breed.

The following fact proves that the greyhound is by no means deficient in this respect:—Mr. Moore, then a resident at Windsor, Berkshire, requested some of his friends in the north of England to obtain for him a well-bred greyhound. His application having been successful, the greyhound was consigned by the waggon to London; from Bishopsgate-street it was conveyed to the Belle Sauvage, upon Ludgate-hill, where it was delivered to the driver of the Windsor caravan, and reached the place of destination in safety. After a confinement of two days, with every attention in food, &c. the dog was left at liberty, apparently satisfied with his situation, and the caresses he received. The next day he suddenly departed, and the gentleman soon afterwards received a letter, informing him that the greyhound had reached the place of his former residence in Yorkshire, before the return of the waggon by which he was originally sent to London.

It was formerly supposed, that greyhounds, bred in countries where the ground was chiefly arable, were superior in speed and bottom to those produced in hilly countries, but the contrary is now proved to be the real fact. It is well known that the best bred dogs can acquire no celebrity against powerful opponents, unless they be continued during the season, in a regular routine of training, in which, physic, food, and exercise, are equally concerned. Some atten-

tion is necessary to the state of the blood, as well as the state of the body; if the latter be permitted to become plethoric, and overloaded, the former will be proportionally sizy and viscid, considerably affecting respiration, which should always be free from obstruction. Indeed, the good or bad condition of the greyhound depends almost entirely upon the manner, as well as the means, by which he is supported: those who keep them in high condition, and at all times ready for sport, are very particular in respect to their food, which it is evidently clear should be highly nutritious, without being difficult of digestion. Broths and gelatinous substances, incorporated with raspings, boiled biscuits, milk, oatmeal, or bread made from the latter, and wheat-flour, equal parts, intermixed with a few beaten eggs and new ale, then formed into small loaves, and given with broth, boiled from sheeps'-heads, properly broken to pieces for the purpose, are well adapted, by their nutritious qualities, to keep the frame in a due degree of strength for bodily exertion, without over distending the intestinal canal, or tending to promote constipation there. Greyhounds should, the least of all sporting dogs, be fed with horse-flesh, which is frequently so impregnated with morbidity, and replete with impurities, as to be productive of cutaneous diseases, and inveterate eruptions.

THE BEAGLE.

The numerous crosses in the different breeds of both beagles and hounds, according to the inclinations of those that keep them, have so variegated this particular part of the species, that the original beagle is very scarce. Indeed, the former attachment to beagles has considerably declined, owing to gradational improvements.

In ancient times slow hunting was fashionable; it was admirably adapted to age, and particularly to ladies; it was also accommodating to rustics, who possessed no horses, yet found it an easy matter to be up with their pack on foot. Beagles were then almost uniformly so well matched, that they did not exceed ten or eleven inches in height, and so carefully selected, in respect to speed, that whenever they were running they might be covered with a sheet; and this alone is the predominant trait of celebrity in a pack of beagles, whether great or small. When slow hunting declined, beagles became of less repute; and it is now very uncommon to see a greater collection than two or three couple; and these are chiefly used in counties where hares are scarce, or difficult to be found, for the purpose of assisting the greyhounds.

Beagles are inferior to harriers in size, although they possess precisely the same properties. They are the smallest of the hound race used in this country, are exquisite in their scent of the hare, and indefatigably vigilant in their pursuit of her; though not equal to the greyhound in speed, hey are in perseverance; they follow her through all her windings, and by their scent trace and retrace her footsteps in a wonderful manner. Colonel Hardy had once a collection of this diminutive tribe, amounting to ten or twelve couple, and insignificant as they seemed, they invariably kept a hare at all her shifts to escape them, and finally teazed her to death.

THE TERRIER

Is supposed to have derived his name from *terra*, the earth, on account of the avidity with which he penetrates into every hole, particularly when in pursuit of his own game, being an implacable enemy to vermin of every kind. He not only torments the fox, martin, badger, wild rabbit, weazel, polecat, and rat, but endeavours to hunt every domestic cat he sees. In addition to this instinctive inveteracy, terriers naturally endeavor to find, and pursue game with the same alacrity as those dogs which are more immediately appropriate to the sports of the field. No fox-hunting establishment is ever considered complete without a brace of well-bred terriers in the field; and one is generally larger and stronger than the other; for this evident reason, that in a small earth, where the former cannot enter, the other may. From the moment of throwing into covert with the hounds, the emulation of these little animals is so great that they are indefatigable in their exertions to be up with, and near to, the busiest of the pack, during their endeavors to find; and when once the game is on foot, and the hounds are at their utmost speed, the terriers are seldom far behind, and the first short check is sure to bring them in. When the fox is supposed to have run to earth, then the terrier becomes useful, by attacking him under ground with the utmost eagerness, and by the baying ot one at the other, the ear is soou informed whether the fox lies deep, or near the surface, and those who are employed to dig nim out, are enabled to act accordingly.

In the selection of terriers, the masters of fox-hounds are particularly nice: size is not so indispensible as strength, but courage must be equal to both. The black, and black-tanned, or rough wire-haired pied, are preferred; as those inclining to a reddish colour are sometimes, in the clamour of the chase, or by young sportsmen, mistaken for, and hallood off, as a fox.

The terrier is not only in high request by the superior classes, on account of his extensive utility, but he is equally esteemed by the lower order, and frequently employed in the vulgar and cruel amusements of badger-hunting, and badger-baiting.

BREAKING OF DOGS FOR THE GUN.

In the training, or breaking, of dogs for the gun, the first thing to be considered is the animal's temper; some requiring severe and frequent correction, others little or none, and some standing in need of encouragement. A dog should not be broken in too young, lest he become chest-foundered. Some dogs will begin to hunt very early, while others are so long before they take even the smallest notice of game, that many persons have given them away as useless. Let no sportsman, however, be too hasty in condemning backward dogs, as they frequently prove of first-rate excellence; for those which are difficult to break, turn out the best, when by patience and perseverance they have been brought to hunt, and are become staunch When brought under proper subjection, at the age of nine months, or thereabouts, according as he is strong and healthy, you should take him into the field, with an old staunch dog, two or three times, as the latter will give him a notion of ranging and beating his ground. He should be accustomed to obey the whistle, and motion of the hand, in preference to the voice. A pistol, or gun, should be frequently fired over him, to make him acquainted and familiar with the report; for young dogs are sometimes alarmed at a shot, and should therefore be reconciled to it by practice. He should be made to sit, or lie down, until the piece be re-loaded, as a dog that breaks away at shot will injure diversion. When first taken into the field he may do as he pleases; he will most likely pursue indiscriminately every thing he sees, but this eagerness will soon abate, and he will content himself with pursuing partridges, &c. As soon as he begins to know his game, the best method will be to let him hunt by himself, for he can be more easily stopped and managed than when he is in company, as other dogs may render him too eager and jealous; besides, by continually hunting with an old dog, he will acquire a habit of following him, and knowing his superiority, will quietly let him find the game, and never venture to hunt for himself. When he has got the scent, (which is easily learnt by the movement of his tail) he should be allowed to chase his game for a while, particularly if he has been backward in noticing it. To make a dog stop or set is an easy task, and many, in this respect, require little or no teaching. For this purpose, he should be accompanied by an old steady dog, and the less noise that is made the steadier he will hunt. If taught to hunt by the motion of the hand, he will regularly look for the signal

whenever at a loss; and the voice or whistle should be used as little as possible, for if satisfied with hearing alone, he will seldom ever turn to look at his master. He should never be suffered to break field, that is, to go out of the field before, or without his master. If on finding game he spring and chase it, conduct him instantly back to the place from whence he started, and there make him lie down several times.

Blinking is when a dog finds his game, and, on being spoken to, draws off, and runs behind his master; frequently he will do this without being spoken to, and this habit is generally contracted by indiscriminate castigation; severe correction must, therefore, be avoided, or we may be apt, by endeavouring to break him of one error, to lead him into a worse. When a young dog finds game, his master should never run, but walk slowly up to him; for if he run, the dog will naturally do the same, and certainly spring the birds.

Whenever young dogs *rake*, that is, hunt with the nose close to the ground, which frequently happens, they must be immediately cured of this habit: whenever a dog follows the game by track, he should be called to in an angry tone, which will sometimes have due effect. Partridges lie much better to dogs that wind them than to those that follow by the track. The dog that winds the scent approaches the birds by degrees, and with more or less caution, as he finds them either shy or tame, or as they lie well or ill, which he is enabled to discover by the scent which they emit when they are uneasy: besides, when they see him hunting round him, they are not so much alarmed as they are when they perceive him following them. Birds are always disturbed when they see a dog tracing their steps. When a dog follows them in this manner down wind, he generally springs them; for he is not able to take the scent properly until he is upon them, and then they will not lie. Dogs that carry their heads high will always find the most game.

It is generally supposed; if a dog has a good nose he cannot be too swift; but very fleet dogs are apt to run over the game, and are certainly sooner fatigued than a steady, even-rated one. A dog of the latter description will make ample amends for the want of swiftness, by hunting more carefully, and never passing, or running in upon his game. That celerity of the canine race, which is so necessary in hunting the hare, fox, &c. is not so requisite for the pursuit of feathered game.

The temper and disposition of a dog immediately appear at the time of his being trained, and by receiving the first rudiments of his education from his master, he of course understands his voice and signs better than those of a stranger. If, after being broke, the dog passes into other hands, he has, in some degree, a new task to learn, owing entirely to his being unacquainted with the motions, &c. of his new master.

The art of breaking dogs was formerly considered a most difficult and mysterious concern, many of those, denominated dog-breakers, having derived their sole subsistence from such employment. The simplicity of the process is now so generally known among sporting practitioners, that a tolerably well-bred puppy may have the groundwork of all his future perfections theoretically implanted in the parlour, kitchen, or yard, before he once makes his appearance in the

field. The instinctive impulse is frequently seen to display itself in subjects about three or four months old; when in still and uninterrupted situations, puppies may be observed most earnestly standing at chickens, pigeons, and even sparrows, upon the ground, by sight, before the olfactory powers can be supposed to have attained maturity to prompt a point by scent.

When a whelp of this description has reached his sixth or seventh month, the process may be proceeded in the following way; and either a single dog, a brace, or more, may be managed with equal ease, in any convenient spot, at the same time, with no other assistance whatever than the alternate expressions of, "To ho!"—"Have a care!"—"Take heed!—and, "Hie on!"—having a small whip, or cane, in the hand, to enforce obedience. The commencement of the ceremony consists in throwing a piece of meat, or bread, at some small distance before the dog, who, upon endeavouring to seize it, must be checked by a quick exclamation of, "Take heed!" &c. to keep him in a patient point of perseverance: when he has stood a sufficient time to demonstrate his obedience to the injunction, then a vibrative low-toned whistle, accompanied with the mild ejaculation of, "Hie on!" will prove the signal for proceeding, which the whole will quietly learn to obey; and it will be found by practice, that one, or more, may, at the very moment of approaching the temptation, be as instantly stopped, and re-called by the repetition of a verbal caution,——"Have a care!" &c.

No dog should be brought into the field for constant (or even easy) use, till nearly, or full, a twelvemonth old; otherwise, they become frequently weary, and foot-sore; and it sometimes produces an habitual lassitude, and bodily indifference, that is never after shaken off. When young dogs have coolly and deliberately imbibed the fundamental principles upon which they are to act, they have the full force of nature, and their predominant propensity to point out their practice when brought into the field. If inclined to deviate, or range too much, the cool and steady patience of the experienced sportsman will soon check their impetuosity.

Young dogs should never be permitted to deviate from the proper rule of quartering the ground before them, and directly, that is, to cover a line of threescore yards transversely, in the front of his master, by taking thirty yards to the right, and then repassing him, take thirty yards to the left, where he again turns, and continues that routine in such proportions as not to let his crossings and re-crossings be more than twenty-five or thirty yards from each other.

When a young dog is once made steady to bird and gun, broke from a natural desire to chase his game, and rendered obedient to every signal which is necessary for him to know, then is the proper time to entertain him in company, that he may avail himself of the advantages to be derived from the experience of older dogs. Previous to this introduction, and as soon as he knows his game, and is anxious in the pursuit of it, feel for the wind, and let him have it as much in his favor as the form of the field and circumstances will allow. As soon as he comes to a point, a pause should ensue, and he should be permitted to enjoy it. Now is the time,

if the game luckily lies, to advance gradually and silently. When time sufficient has been employed to confirm his steadiness, the game may be then walked up.

Those who wish their dogs to bring the game to foot, when killed, must teach them to fetch and carry before they are at all accustomed to the field.

DESCRIPTION OF DOGS USED IN SHOOTING, AND OF THE GAME.

POINTER.

Notwithstanding the beautiful uniformity of his frame, the docility of his disposition, and the general utility of the animal in the diversion of shooting partridges, moor-game, &c. the pointer has been less noticed by naturalists than any other species of the canine race. Of late years, however, sportsmen have paid particular attention to the preservation and improvement of this breed, and have been amply recompensed for their care. This dog is of foreign extraction, being a descendant of the

SPANISH POINTER,

Which was brought to England from Spain, and in shape, make, strength, seeming stupidity, and bodily tardiness, bears some similitude to the haughty and somniferous manners of the Spanish. This pointer is short in the head, broad in the forehead, wide in the nose, expansive in the nostrils, simply solicitous in aspect, heavy in the shoulders, short in the legs, almost circular in the form of the body, square upon the back, strong across the loins, and remarkably so in the hinder-quarters. Like the English pointer, this breed is of various colours, but the brown liver-colour and white are the most predominant. Though exceedingly slow, the Spanish pointer is generally sure, and so indefatigable and minute in his researches, that he seldom misses his game, when game is to be found. To the recovery of winged and wounded birds the patient perseverance of this dog is peculiarly adapted; and, for the sport of snipe-shooting alone, they are entitled to the preference of every other.

The pointer is now naturalized in England; and, in consequence of many improve-

ments in the breed, the dogs of this description are superior to those of any other nation. Some years ago they were nearly white, or mostly variegated with liver-coloured spots, except the celebrated stock of the then Duke of Kingston, whose breed of blacks were considered superior to all in the kingdom, and sold for immense sums after his grace's death. But so great has been the constantly increasing attachment to the sports of the field, particularly of the gun, that they have been since bred of every description, from a pure white, and a flea-bitten blue, or grey, to a complete liver-colour, or perfect black. After all the experiments of our best judges with respect to size, the general opinion is, that when bred for every species of game, both extremes should be avoided: overgrown, heavy dogs, soon get weary in the hot and early part of the season, and small dogs find great inconvenience in hunting among turnips, heath, ling and broom-fields.

Pointers, however well bred, are never considered complete unless perfectly *staunch* (as it is termed) to bird, dog, and gun; which uniformly implies, first standing simply to a bird, or covey; secondly, to backing (or pointing instantly) the moment another dog stands; and, lastly, not to stir from his own point at the rising of any bird, or the firing of any gun in the field, provided the game be neither sprung nor started at which he made his original point.

The pointer is gentle, docile, and timid, and remarkable for the facility with which he receives instruction. There are good of all colours, but some prefer the white and the liver-brown. A white pointer is less subject to disease than others, which arises from the predominancy of phlegm in his constitution: his temper is good; he has an excellent nose, is a curious hunter, full of stratagems and cunning, and may be seen at a great distance. A brown, or liver-coloured pointer is not so easily seen at a distance, particularly on a mountain; notwithstanding, he will bring his master nearer to the game, and is particularly useful when it does not lie well; which arises from its colour approximating more nearly that of stubbles, &c. among which he hunts, and thereby rendering himself a less distinguishable object to the birds. A lemon, or red-coloured pointer is generally of a giddy, and impatient nature; choler being his most predominant humour.

SETTER.

The English setter is a species of pointer, originally produced by a commixture between the Spanish pointer and the largest breed of the English spaniel, and it is sometimes called the large land spaniel. By careful cultivation it has attained a considerable degree of estimation and celebrity, as well for its figure, as its qualifications. The setting-dog is, undoubtedly, in respect to natural formation and effect, equally beautiful and attracting with any of the canine species; there is an elegant uniformity of figure, shape, make, and speed, a pleasing variegation in colour, (as yellow, or brown pied) an inexpressible diffidence and solicitation of notice, accompanied by an aspect of affability, humility, and an anticipation of gratitude, far beyond the power of language to express.

The sporting department of the setter, in the field, precisely corresponds with the pursuits and properties of the pointer, but with this single variation; that, admitting their

olfactory sensations to be equally exquisite, and that one can discover, and as expeditiously receive and enjoy, the effluvia of the game, as readily and at an equal distance with the other: the difference of the sports in which they are respectively employed, renders it necessary that one should effect upon his legs what the other does by prostration upon the ground, in the very position from which the appellation of *setting*-dog is derived: and these are neither more nor less than the pure effects of sporting education; for, as in shooting with the pointer, the game is constantly expected to rise, so in the use of the setting-dog and net the game is required to lie. But though the setting-dog is in general used for the purpose of taking partridges with a draw-net, yet they are occasionally employed with the gun, and are equally applicable to that appropriation, except in turnips, standing clover, French wheat, furze, ling, or other covert, where their sudden drop and point may not be so readily observed.

The feet of the setter are much better defended against the sharp cutting of the heath than those of the pointer, by the quantity of hair growing between the toes and round the ball of the foot, of which the pointer is nearly destitute. When the ground has become hard by frost, his superiority from this cause is strikingly conspicuous; at the same time that he ranges faster, and will endure more fatigue. In any rough country the setter has, undoubtedly, the advantage, though the pointer is equally as good where there is nothing but smooth hunting. The setter is a high-mettled creature, and whom it is extremely hard to *break in*, but when broke in, less apt to have *too much set*, i. e. to make a steady point when the game is gone. A setter requires water in hot weather oftener than a pointer, being more thickly clad; for dogs with much hair drink oftener than those with thin coats.

Some setters will take the water as readily as water-spaniels, and if birds fall into it, after being shot, will fetch them out without breaking a feather. There are pointers, also, that will take the water, but these have been crossed, in a greater or less degree, with the setter, as the high, thorough-bred pointer is by no means fond of the water.

THE SPRINGER AND COCK-SPANIEL.

This race of dogs consists of two kinds, one of which being considerably larger than the other, is known by the appellation of the springer, or springing-spaniel, as applicable to every kind of game; the smaller is called the cocker, or cock-spaniel, it being more particularly adapted to covert, or woodcock shooting.

The true English springer differs but little in figure from the setter, except in size; varying only in a small degree, if any, from a red yellow, or liver colour, or white, which seems to be the invariable external standard of this breed; and, being nearly two fifths less in height and strength than the setter, delicately formed, ears long, soft, and pliable, coat waving and silky, eyes and nose red or black, the tail somewhat bushy and pendulous, and always in motion when actively employed.

The cock-spaniel has a shorter and more

compact form, a rounder head, shorter nose, ears long, (and the longer the more admired) the limbs short and strong, the coat more inclined to curl than the springer's, and longer, particularly on the tail, which is generally truncated; the colour, liver and white, red, red and white, black and white, all liver colour, and not unfrequently black, with tanned legs and muzzle.

Some of the largest and strongest of this breed are very common in most parts of Sussex, and are called Sussex spaniels. The cock-spaniel is that peculiar breed which was preserved by the late Duke of Marlborough, invariably red and white, with very long ears, short noses, and black eyes; they are excellent and indefatigable, and in high estimation.

Although these spaniels vary in size, they differ but little in their qualifications, except that the larger does not equal the smaller in the rapidity of action; nor do they either seem to catch the scent so suddenly, or, when caught, to enjoy it with the same enthusiastic delight. The smaller spaniel has also the advantage of getting through the bushy covert with much less difficulty than the larger spaniel, and in that particular department may probably not tire so soon, whatever may be the labour of the day.—Spaniels of both descriptions are used as finders in coursing with greyhounds, and are eagerly indefatigable in their exertions to find and pursue a hare, as they are in search of winged game with the gun. From the time they are thrown off the field, as a proof of the pleasure they feel in being employed, the tail is in perpetual motion (which is termed *feathering*,) upon the increasing vibration of which the experienced sportsman well knows when he is getting nearer to the object of attraction. The nearer he approaches the more energetic he becomes in his endeavours, and when the game is found clamorous raptures proclaim his gratification

It is absolutely necessary that all young and inexperienced sportsmen should take the field with spaniels, on account of their incessant activity, otherwise they may cover many a weary mile of ground without having a successful shot. As it is the unchangeable nature of these dogs to spring, flush, or start all the game before them; and as they pursue, without preference, hare, pheasant, partridge, woodcock, snipe and quail, it becomes the more necessary to hunt them within gun-shot out of covert, and with bells or gingles on their collars within, if it be close or extensive, that they may be prevented from beating too wide. Spaniels, however, are considered more applicable to shooting in covert, than to the pursuits in which pointers or setters are more properly engaged.

> "But if the shady woods my cares employ,
> In quest of feather'd game my spaniels beat,
> Puzzling th' entangled copse, and from the brake
> Push forth the whirring pheasant—high in air
> He waves his varied plumes, stretching away
> With hasty wing."

THE WATER-SPANIEL.

This dog is held in high estimation for the enjoyment of sport with wild fowl. Water-spaniels have been known to answer every purpose of springers; and the breed no doubt originated in a cross between the large water-dog and the springing-spaniel:

some think that the black are the best and hardiest; the spotted, or pied, the quickest of scent; and the liver-coloured the most rapid in swimming and the most eager in pursuit: these, however, may be fantastic suppositions. Good and bad, of all colours are to be found; therefore colour is a mere matter of taste. The body should not be too large, nor the frame too heavy; the head should be round, the ears long, broad, soft and pendulous; the eyes prominent and lively, the neck short and thick, the shoulders broad, legs straight, chine square, buttocks round and firm, thighs muscular, pastern-joints strong and dew-clawed, fore-feet long and round, and the hair long and naturally curled.

As the water-spaniel derives his chief excellence from the advantages of an early education, he cannot be too soon reduced to the trammels of obedience: at three or four months old, or, in fact, as soon as he is capable of obeying verbal injunctions, he should be accustomed, as much as possible, to the word of command. To couch and lie close, not daring to stir without permission, are the leading steps to every subsequent instruction. He should be caressed and fed when he acts right, but scolded and menaced when he does wrong. The exclamations necessary in breaking and hunting the water-spaniel are very concise, "down!"—"hie on!"—"back!"—and "hie lost!" are all that is required in wild fowl shooting, and the introduction of more is not only superfluous but may occasion confusion. These terms he soon becomes perfectly accustomed to and readily obeys; the first implying to couch or lie close; the second to try on for the game; the third to come behind; and the last to try hard for the recovery of the bird, when killed or wounded, and sometimes lost in the rushes or covert. One qualification becomes indispensably necessary, and which the water-spaniel should be taught from his infancy, that is, to fetch and carry with the greatest alacrity, executing both by the word of command—"hie lost!"—"back!" This is easily taught with a ball, a glove, or any other light article. In the attainment of this acquisition, care must be taken in the commencement to make him use a tender mouth, otherwise the birds would be wantonly mangled and torn, and rendered unfit for the table. When completely broke, and expert in their business, water-spaniels are indefatigably energetic in the discovery and pursuit of every kind of fowl, whose place of nativity or residence is in or near an aqueous situation; and, by the effect of minute observation they arrive at such a degree of excellence as almost exceeds credibility; for, upon flushing the bird, whatever it may be, the eye is fixed so invariably upon the flight, that instantaneously upon the discharge of the gun, if the game be palpably stricken, he sets off with the most determined speed to bring it to his master, and to obtain possession of it, if possible, even before it reaches the ground.

The water-spaniel is not only of great utility to the sporting world in the field, but his services are absolutely indispensible in the formation of

A DECOY FOR TAKING WILD FOWL.

In this decoy are several flues, or pipes, of net-work, which lead up a narrow ditch, that terminates with what is called a funnel-net. Over these pipes, (which become gradually

contracted from their first entrance) is a continued arch of netting, suspended on hoops, it being necessary to have a pipe, or ditch, for almost every wind that can blow; as upon this circumstance principally depends which pipe the fowl will take to, as the decoy-man is always under the necessity of keeping on the leeward side, to prevent his effluvia from reaching the olfactory sensations of the ducks, of which, strange as it may appear, they are exceedingly susceptible. During the whole length of each pipe, at different spaces, are placed screens, made of reeds, which are so situated that it is impossible the wild-fowl should see the decoy-man before they have passed on towards the end of the pipe where the purse-net is placed. The inducement to the wild fowl to go up one of those pipes is, because the decoy-ducks, trained to lead the way, after hearing the whistle of the decoy-man, or enticed by the hemp-seed, instantly dive under water, whilst the wild fowl fly on and are taken in the purse. But sometimes it happens that the fowls are in such a state of sleeping or dozing, that they will not follow the decoy-ducks; there is then no alternative but to resort to the assistance of the water-spaniel, who, having been previously and properly taught his lesson, passes backwards and forwards between the reed screens, (in which there are small holes both for the decoy-man to see, and larger at bottom, for the dog to pass through.) This attracts the attention of the fowl, who, not choosing to be interrupted, advance towards the busily-employed animal, in the hope they may be able to drive him away. The dog all the time, by the direction of the decoy-man, plays among the skreens of reeds, and the wild-fowl not daring to pass by him in return, nor being able to escape upwards, (on account of the net covering,) rush on into the purse-net, yet, notwithstanding their general alertness upon the watch, they are sometimes so insensible to the approach of danger, that even the appearance of the dog will not attract their attention, if a red handkerchief, or something singular, is not put about him.

Decoys, so admirably calculated to supply the public with delicious food, cannot be formed except in places where nature gives her assistance: marshy, low lands, plenty of water, and sequestered situations, are highly necessary for the undertaking. Decoys are to be seen in different parts of England, but they are more plenty in the northern and eastern counties than in any other: Lincolnshire, Essex, Cambridgeshire, and some parts of Warwickshire, are remarkable for some extensive decoys, from the principal of which the markets of the metropolis are plentifully and reasonably supplied. Lincolnshire seems to take the lead in its production, where the most astonishing number of ducks, wigeons, and teal are constantly taken.

For the protection of decoys in general, and the preservation of those whose interest is concerned, it was enacted, during the reign of Queen Anne, that if any person whatsoever shall, by hays, tunnels, or other nets, drive or take away any wild duck, teal, wigeon, or other water-fowl in the moulting season (which in 10 George II. is expressly specified between the 1st of June and the 1st of October,) such person being thereof convicted before a justice, shall forfeit five shillings and the hays, nets, or tunnels used in driving or

taking such fowl, shall be destroyed. An action will also lie against the disturber of a decoy, by firing a gun within a certain distance, or any other act of wilful injury whatever.

THE WATER-DOG,

From which the water-spaniel originates, is a large animal, but not of general use. These dogs are exceedingly singular in their appearance, and have probably derived their origin from the Greenland-dog, blended with some particular English race. They are of different colours, but of the same shape and formation. The jet black, with white feet, stand the highest in estimation. The head is rather round, the nose short, the ears long, broad, and pendulous; the eyes full, and lively; the neck thick, and short; the shoulders broad; the legs straight; the hind-quarters round and firm; the pasterns strong, and dew-clawed; and the fore-feet long, but round, with the hair in natural short curls. During his puppyhood, this dog displays a strong inclination to be busy; he takes delight in removing shoes, boots, mops, brooms, pattens, &c. At this time he should be taught to fetch and carry sticks, or any other article which he is capable of retaining: also, to bring sticks, &c. out of waters of every depth and description. Instances are numerous of money, gloves, handkerchiefs, &c. being deposited under stones, or in hollow trees before dogs of this description, and after walking a mile or two, they have been ordered to return for the articles, and have faithfully brought them back. They have been also taught to knock at a street-door, or ring a bell, for admission, and they have been occasionally preservers of people when in danger of being drowned.

Upon the sea-coast this breed is principally propagated, where they are mostly brought into use, and held in proportional estimation. Along the rocky shores and dreadful declivities beyond the junction of the Tweed with the sea of Berwick, water-dogs have derived an addition of strength, from the experimental introduction of a cross with the Newfoundland dog, which has rendered them completely adequate to the arduous difficulties and diurnal perils in which they are systematically engaged. These stupendous and inaccessible cliffs and precipices are so favorable to the propagation of soland geese, sea-gulls, and wild fowl of every description, that the coast may be said to be covered with them, from one extremity of the northern district to the other, and the necessitous and laborious class entirely support themselves and families, during the greater part of the year, by patient attacks whenever there is a probability of success, (otherwise they never discharge a gun) and by the persevering exertions of their dogs. Those clifts, or recesses, are selected which, from their situation at certain angles, or points, afford the most promising expectations of success: in each of these, (but not at a less distance than one quarter, or the third of a mile from each other) huts are so curiously constructed with sods, intermixed with loam, marl, and other applicable articles, as to form, when finished, a seeming part of the rock itself. To each hut is a door, or shelf, within, for the convenience of depositing provisions and ammunition, as well as three circular openings of four inches diameter, (to the right, the left,

and the centre,) for the discovery of the fowl on their approach, and the subsequent discharge of the gun, when they, fortunately, were within shot, but which is never discharged except the magnitude of the birds promises a profitable hit; the smaller tribe are permitted to pass unmolested. In this sequestered situation, remote from every human eye, accompanied only by his faithful dog, the adventurer takes his seat at the very dawn of day, his success depending more upon the fluctuating favor of the elements than upon any energetic endeavours of his own. This occupation (for by the happy and enlightened part of the world it cannot be termed a sport, or amusement,) requires more patience and philosophy than any other in which the dog and gun are conjunctively concerned.

The following observations on the spaniel, as to breed and training, are quoted from the *Sporting Magazine* for 1815:—

"This breed of dogs, from the superiority of pointers during the first sporting months, and from their having been found adequate to all purposes, where the covers are light, throughout the season, has of late years been greatly neglected; insomuch that the well-bred spaniel is now rarely to be met with. As a proof of this, seldom do we see a whole litter of puppies like each other in marks and colour, nor when grown up do they more resemble each other in shape, style of hunting, or last, not least, in strength and courage. It is an old saying of dogs, as well as horses, that a good dog cannot be of a bad colour; nor, as many will infer, of a bad sort. It cannot be denied, that in some, nay, in many instances, arrant curs have proved excellent hunters; and have, in every respect, answered the purposes of the spaniel. As breeders, however, they cannot be depended on. To some of their posterity they may transmit their good qualities; but as, from natural causes, they must in time degenerate, and get fond of vermin; moreover, as the appearance of them is such a discredit to the sportsman, the true spaniel should be substituted in their stead.

"Of the few real spaniels now amongst us, the supposed descendants from such as were formerly introduced, when woodcocks were plentier in the western parts of England, we may trace three or four families; the yellow-pied, with fine silky hair; the liver-coloured, long-legged, sharp-eared; as also the liver-spotted, round-eared, short-jointed, both peculiar to Devonshire; and the coal-black, with tan legs and tan spots over the eyes, in Cornwall. These are all supposed to be of a genuine breed; and those which have been well broken have turned out invariably good; because they have ever borne spots and marks as indicative of their family; and because, when broken, they have resembled each other as respectively in their habits and utility. The rough breed, of various colours, and the large liver-spotted, with very long shaggy ears, seem almost extinct.

"When we speak of breed, however, in the spaniel, we speak of one half only of what is required in this sort of dog. Without good breaking, the best show their origin and resemble their ancestors in appearance only. It may be worth our while, therefore, to speak of a circumstance so indispensable in the subject before us. As puppies, after weaning and tailing, they should be fed often; indeed, until they are three parts of a year old, and upwards, at least three times a

day. Provided the proper means be used to promote their stamina, their native courage will fully meet the almost incredible fatigue and hardships they will generally have to cope with, and this at times in the most inclement season of the year. For this purpose, they should have milk several times in the week, be allowed clean water to lap, and, if possible, a dry green, to sport and play on by day, with clean straw, but not hay, to lie on at nights. Nor must we omit the precaution, that children be not allowed to play and toy with them, and that they be by no means allowed to bask before the fire. Much self-command and patience as it requires, it is well worth the sportsman's while himself to enter them, and this should be done before they are a twelvemonth old. They should not at first be allowed to range the open field after larks, and every other incitement to the reverses of control and order. On the contrary, they should be taken directly into cover; and if they range and hunt the same it is enough. At first, they should only be whistled to, nor should they be either chid or encouraged. Kept constantly in good humour, they will soon learn to work before you, and try the ground with regularity; but flagellation, and the sowing the seeds of ill-habits at an early age, should be avoided as much as possible. Various are their dispositions, as far as concerns their regard to work at the first onset; some are froward, and others meek, and the howlings of one under flagellation may for ever cow another, whose powers it were possibly worth much pains to elicit.

"Being entered, and in some measure shot to, the first season, at the commencement of the next for cover-shooting, they may, with some patience at first, be admitted to regular work. Yet are they inexperienced, inasmuch as they are not aware of the most probable haunts of game, nor do they know how to manage a doubtful scent. In the company of old dogs, however, they improve very fast. At three years old they become very tolerable finders; at four, get knowing and sagacious in their work; and, at five years, they are in the zenith of all their properties and powers; when, taking all countries, and the divers kind of work they have to accomplish, and the fatigue they can endure, into consideration, they become the most valuable appendage to the admirers of cover-shooting.

"It would be improper to dismiss the subject, without noticing a circumstance in the treatment of this sort of dog, productive o the most fatal consequences. With many it is a common practice not to enter spaniels till they are two years old, or the third season from whelping; and then, because they range and hunt in cover, they are of a sudden, forsooth, required to understand and obey commands also. Not so; the instilling this principle so as to act as a const nt bias on the conduct of the animal, is the work of time and patience only; the sense o it must be entertained when young, increase with the stature, and grow with the growth. Without this implicit obedience to command, you may have many dogs with you, but no one employed as it ought to be; one shall be far a-head hunting upon her own account, and putting up every thing out of shot; another close behind your heels, with his tail between his legs; a third, sneaking and creeping after you at a more respectful dis-

tance; whilst the rest are ranging so wide on either side of you, as to provoke the most patient to the use of execrations, and to oblige him to return home, as he went out, with an empty bag."

GROUSE-SHOOTING.

This is a very laborious amusement, and requires great judgment, particularly in such mountains as the sportsman is a stranger to. Several take this diversion on horseback, which, of course, considerably lessens the fatigue; and, for this purpose, galloways, or ponies, are used; so trained that they will stand still with the bridles on their necks while the sportsman takes aim and shoots. The sportsman should be provided with plenty of dogs; three brace are sufficient, hunting only a brace at a time; and, indeed, two brace, properly managed, may afford plenty of diversion. By allowing the first couple of dogs to hunt only half the day, they will be sufficiently refreshed to hunt the next morning. As the season for this sport is generally the hottest in the year, it becomes necessary to be clothed accordingly. The lighter the dress the better, taking care that the garments next to the skin chiefly consist of flannel: those who have an aversion to flannel, may use calico instead.

To walk among the heath in hot weather, till a violent perspiration ensues, and then to become stationary for a time, which is sometimes the case in grouse-shooting, will be apt to incur a severe cold if a linen-shirt be next to the skin; add to which, the disagreeable sensation it excites by sticking to the back. Short boots, which lace close, and are easy to the legs and feet, should be worn instead of shoes. A brandy-flask is a necessary appendage, to the bottom of which a cup should be attached, for the purpose of occasionally mixing water with brandy; for no sportsman, when warm, should, let him be ever so thirsty, drink cold water alone.

Previous to this diversion, it is necessary to consult the barometer, for grouse foresee the change of weather, and shift their ground accordingly. When inclined to rain, they will generally be found about midway on the hills, and when the weather is very bad, the buts of the mountains are the places they frequent: in fine weather they will be found near the tops. These birds go to water immediately after their morning flight, which is the proper time to begin the day's diversion: from that time till the extreme heat of the day comes on, good sport may be obtained; also, from three o'clock till sun-set. During the dead time of the day, grouse frequently creep into deep roots, and mossy places, to screen themselves from the excessive heat of the sun.

These birds are found in different parts of the world, and are of various kinds; but those of Great Britain are known by the name of red grouse, or moor-game, and are much larger than the partridge, the male weighing about nineteen ounces. The bill is black, the eyes hazel coloured, the throat red, the plumage on the head and neck a light tawny red, every feather being marked with several transverse bars of black; the back and scapulars are a deeper red, and on the middle of every feather is a large black spot; the breast and belly are of a dull purplish-brown colour, crossed with narrow dusky lines, the quill-feathers are dusky;

the tail consists of sixteen black feathers, the four middlemost barred with red; the thighs are a pale red, obscurely barred with black; the legs and feet of the old birds are clothed down to the claws with thick, soft, white and brown feathers, and the outer and inner toes are connected to the first joint by a small membrane. Grouse are called *poults* till they are a year old. The female weighs about fifteen ounces; her colours, in general, are less vivid, having more of the white and less of the red feathers than the male. They feed on mountain berries and the undertops of heath.

Grouse pair very early in the spring, and the female lays from eight to twelve or thirteen eggs, in a very simple nest, formed on the ground. The young leave the nest about as soon as hatched, and continue to follow the hen till the severity of the winter sets in, when they unite in packs of twenty or thirty brace. The hen is very careful of her brood; if a dog appear she will throw herself on the ground directly before his nose, screaming dreadfuly, and manifesting an apparent incapacity of flying. The dog eagerly pursues, expecting every moment to catch her; but when she has drawn him a sufficient distance from her young, she suddenly extends her wings, and leaves her astonished pursuer to follow her with his eyes.

In grouse shooting be careful to give the dogs the wind, and diligently try the sides of the mountains which are most sheltered. If it blow hard, these birds will be found where the heath is longest: in this case grouse generally take long flights, and for the most part down the wind (i. e. not against the wind) which is the very reverse of what most other fowls are known to do. To the disagreeable circumstances attending a high wind, may be added the difficulty of keeping the fowling-piece steady, and the probability of a flash of the pan blowing into the sportsman's face,

On finding a pack of grouse, the old cock is generally the first that makes his appearance, and the first to take wing. If not much disturbed, he will run before the dogs, make a chuckling noise, and frequently get up and challenge without any appearance of apprehension; but by this he warns the hen and poults, who immediately run and separate. The hen generally runs as far as she can from her pursuers, in order to draw their attention from the poults; and if the poults be strong enough to shift for themselves, she will sometimes insure her own safety, and leave them entirely. In this case good diversion may be expected; the first object should be to kill the old cock, which will very probably lead to the capture of the young ones, one after another; for, in the beginning of the season, they lie very close, particularly after hearing the report of a gun, which terrifies them in such a degree that they become insensible, and may be taken up with the hand under the dog's nose: when this happens the ground should be carefully beaten. If much rain should have fallen previous to the morning of shooting, grouse will not *lie*, they will erect their heads and run; and the only chance the sportsman has of getting within shot is to run also; but this spoils the dogs, for when they see their master run they will also do the same.

Grouse are very difficult to be netted, owing to the straggling manner in which

they lie, and their habit of scattering on the approach of the sportsman or the least noise. Two or three brace are the most that can be taken at a time in this way, and very seldom so many. Burning heath on the mountains, as it is done chiefly in the spring, is very destructive to grouse, as numerous nests are thereby destroyed. There is an act of parliament against it, but the practice is winked at on account of the benefit derived therefrom by the owner of the mountain.

As grouse are frequently sent to distant acquaintances after being killed, particularly in hot weather, it is with great difficulty they are kept sweet. Mr. Thornhill recommends the following method of preservation, which he declares to be the best hitherto discovered :—"Never draw your game, particularly grouse, that is, do not follow the usual directions, of taking out the entrails, when you wish to send them any distance. The best mode is not to pack them till they are perfectly dry. First of all procure bladders, and put a brace or more in one, if the bladder will contain them : tie the bladder tight round the neck, and seal it with sealing-wax, to prevent the air from getting in; and in this state, if put into boxes, they will keep for three weeks if required." Some put a little heath in the bottom of the box, and wrap the birds separately (without being drawn) in paper.

PARTRIDGE SHOOTING.

The partridge is a simple, timid bird, and may be easily beguiled; they are often driven into a tunnel-net, by which poachers seldom miss taking a whole covey at once. These birds generally pair about the second week in February, but in a mild season they are found in pairs as early as January; should the weather afterwards prove severe, they again assemble in number, or, according to the sporting term, in *packs*. Their nest consists of a few blades of withered grass and leaves, constructed without art, and chiefly found in corn-fields, amongst clover, long grass, or in the bottom of hedges.. The female lays from thirteen to twenty eggs, and sometimes more. The egg is about the size of a pigeon's, but more obtuse, and of a greyish colour. The period of incubation is three weeks, and so closely do they sit on their eggs, particularly when near hatching, that instances have frequently occurred of a hen partridge being cut in two by a scythe. The great hatch is about the first ten days in June, and the young birds begin to fly about the end of that month. If a partridge's nest be destroyed, she generally lays again, and this brood, which is termed by sportsmen *clacking*, is not game till October; these birds are always weak, and generally fall victims to the inclemency of the weather.

The brood are able to run as soon as they are hatched, and are, indeed, sometimes seen carrying part of their shell with them. They are immediately led by the cocks and hens to ant-hills, their principal food being, at this time, the eggs of those insects; and such is the excellence of this food, that when properly supplied with it, they seldom fail of arriving to maturity.

The affection of these birds for their young is very great. In the hour of danger, both the cock and hen spread their wings and cover their brood; from this situation they are not easily roused, and when they are,

much confusion ensues. The cock, by a peculiar cry of distress, gives the alarm, and fluttering before the enemy, in order to win his attention, and give the hen an opportunity of conducting her brood to a place of safety, is oftentimes their preserver. On its full growth, the partridge generally provides for itself. There are few instances of this bird remaining tame: the Rev. Mr. Bird had a domestic partridge which attended the parlour at breakfast, and took food from any one that gave it.

The cock partridge weighs about fourteen ounces, and the hen twelve: while young, and their plumage not complete, they may be distinguished from the old ones by the first feather of the wing, which terminates in a point like a lancet; but in those which are not of the last brood, this feather is round in the extremity. The bill of the young bird is also brown, while that of the old one is a blueish white, and the legs of the young are yellow, and of the old one grey. When they become game, (or, according to the sporting term, *black tails*) the cock in general may be distinguished by the bay feathers on his breast, forming a sort of horse-shoe; but this is not a certain rule: the males, after the first or second year, can only be distinguished by a superior brightness of colour about the head.

Partridges are not equally abundant every year, as their number depends much upon the weather. The eggs are frequently chilled, and even when the young ones leave the shell, they are often killed by the severity of the weather. If the months of June and July are fine, these birds are generally abundant.

In partridge-shooting, both pointers and setters are used; but, in a rough country, or where game is scarce, setters are preferable: in an open country, and where partridges abound, pointers are, perhaps, equal to setters; and two staunch dogs will be found sufficient.

The best time for this amusement is from two hours after sunrise until twelve o'clock, and from half-past two or three o'clock until dark. When the weather is very dry, especially at the beginning of the season, and the scent, according to the sporting phrase *sinks*, the dogs' abilities will be put to the test to no purpose. In the middle of the day partridges cease to feed or run, and generally place themselves by the side of a bank, to enjoy the heat of the sun. They generally feed and sleep in separate places, but though they often change their ground, sometimes they remain all day, or all night, where they fed the preceding evening or morning. At day-break they call, and, when collected, generally take their flight to the stubbles, which, if high and thick enough to afford shelter, will induce them to remain there till disturbed; however, particularly in dry weather, they are frequently found at this time among potatoes. After feeding in the evening, they again call, and fly to the place where they intend to remain for the night. When calling, they seldom lie well for the sportsman to approach within gun-shot.

This bird is well known all over the world, as it is found in every country. Wherever it resides it seems to adapt itself to the nature of the climate, and, consequently, varies. In Greenland it is brown during summer, but in the winter its outward plumage becomes white, like snow, and it is

clad with a warm down beneath. The partridges of Barakanda are longer-legged, and much swifter of foot, as they frequent high rocks and precipices. They all agree, however, in one general character, and that is, of being immoderately addicted to venery; the cock will frequently pursue the hen to the nest and break her eggs rather than not indulge his inclinations.

PHEASANT-SHOOTING

This is a laborious sport; but before we enter into the merits of the diversion, it will be necessary to make some observations on the game.

The pheasant is a beautiful bird, and derives its name from its native soil, having been brought into Europe from the banks of Phæsis, a river of Colchis in Asia Minor. The iris of the eye is yellow, and the eyes themselves are surrounded with a scarlet colour, sprinkled with small specks of black. On the fore-part of the head are blackish feathers, mixed with a shining purple. The top of the head, and the upper part of the neck, are tinged with a darkish green that shines like silk. In some, the top of the head is a shining blue, and the head itself, as well as the upper part of the neck, appears sometimes blue, and sometimes green, as the eye of the spectator may be situated. The feathers of the breast, the shoulders, the middle of the back, and the sides under the wings, have a blackish ground, with edges tinged with a colour which varies like the head and neck, appearing sometimes black, and sometimes purple: under the purple is a transverse streak of a gold colour. The tail, from the middle feathers to the root, is above eighteen inches long; the legs, feet, and toes, are of the colour of horn: there are black spurs on the legs, shorter than those of the common farm-yard cock, and a membrane that connects two of the toes together: the female is not near so beautiful as the male, her colours being less brilliant.

This bird, which is so beautiful to the eye, is equally delicious to the taste when served up to table: its flesh is considered as the greatest dainty, and when the physicians of old spoke of the wholesomeness of any viands, they generally compared them with the nutritious flesh of the pheasant.

These birds do not pair like partridges, the cock being sufficient for a number of hens. They seem, however, occasionally to pair, as the male and female are sometimes observed to stray from the provinces and breed in distant situations. They are much attached to thickets and woods when the grass is very long: they also breed in clover-fields. They form their nests on the ground, much in the manner of the partridge. In a wild state, the hen lays from fifteen to twenty eggs, but when domesticated, seldom more than ten. Their eggs are smaller than those of a domestic hen. In moving clover near the woods, frequented by these birds, the destruction of their eggs is sometimes very great: game-keepers, therefore, should drive them from clover-fields, as soon as they begin to lay, until their haunts are broken, and they retire into the corn or places more secure. The young ones, like partridges, follow their mother as soon as they have broken the shell, and will remain some time after the corn is cut amongst the stubbles, and in the bottoms of hedges if undisturbed; but, if molested,

they seek the covers, whence they issue morning and evening to feed, as long as food is to be found among the stubbles: when corn no longer remains they feed on acorns, and wild berries.

When at liberty, the pheasant hatches and rears her brood with patience, vigilance, and courage; but, when tame, she never sits well, and frequently will not sit at all, so that a domestic hen is generally substituted on such occasions; nor, when in captivity, does she seem to be conscious of the necessity of leading her young to their food, and the brood will quickly perish if left solely to her protection. A spirit of independence seems to attend this bird, which, if left at large, is remarkable for its fecundity. Though taken from its native warm retreats, where the woods supply a variety of food, and the genial sun suits its tender constitution, this bird has evinced an extraordinary attachment to native freedom; and, as if disdaining the protection of man, has left him to take shelter in the remotest forests, and to feed on the scanty produce of a chilling climate. By the owners of parks and manors, great pains are taken for the preservation of this beautiful bird; but, notwithstanding every precaution, it will frequently stray from preserved covers—never to return.

In pheasant-shooting, the sportsman should be properly equipped for a cover. Strong woollen cloth gaiters are thought preferable to leather, as in wet weather the latter is very uncomfortable, and the former is a sufficient guard against briars.

If the night previous to the sport be wet, the droppings of the trees will compel the pheasants to quit the woods; and, in this case, the hedge-rows and furze-covers should be diligently tried, as good diversion may be obtained. This bird is much attached to almost all sorts of covers, and especially to the sides of the pits where alder-trees are growing

The setter is the best dog for this sport; but the use of bells is ridiculous, for as little noise as possible should be made. Pointers are frequently too tender to follow this bird through the brambles, which is not the case with a good setter. In hunting, however, with setters, care must be taken never to let them range out of gun-shot. Many persons use springers, or springing-spaniels, for this diversion, and also for partridge-shooting; but this is not the custom of experienced sportsmen. The small springing-spaniel may answer tolerably well in the beginning of the season, or where the birds have not been much disturbed; but he is by no means equal to a setter. The springer is too noisy for this diversion. A pheasant, when found by a setter, instead of going off, will frequently rise into a tree, and challenge, (i. e. make a chuckling noise) which rarely happens when found by the springing-spaniel.

As pheasants lie remarkably well in hedge-rows, here a pointer or setter may be equally useful, for sometimes the bush must be shaken before the bird will rise. It is, however, different in covers, when these birds frequently run a considerable distance, and it becomes necessary to encourage the dog to push the pheasant; though, when a little used to the sport, he will need no encouragement. A springer may, perhaps, push a pheasant quicker than a setter, but unless he be trained to a degree of perfection not

very common, he will occasion ten times the trouble of the setter, and the birds will be more liable to rise out of gun-shot.

WOODCOCK-SHOOTING.

The woodcock, during summer, is an inhabitant of Norway, Sweden, Lapland, and other northern countries, where it breeds; but, when winter approaches, the severe frosts force it southward to milder climates. This bird of passage arrives in Great Britain in flocks; some in October, but not in great numbers till November and December, though they are sometimes seen as early as September. They generally take advantage of the night, as they seldom appear before sun-set. The time of their arrival depends much upon the prevailing winds; they are unable to struggle with the boisterous gales of the northern ocean, and therefore wait for a favorable wind. When they have encountered bad weather on their passage, they are sometimes so exhausted on their arrival as to suffer themselves to be seized by the hand. They occasionally take refuge, during very stormy weather, in the rigging of vessels at sea, and numbers are frequently lost in their passage. The greater part of them leave this country about the latter end of February or the beginning of March, always pairing before they set out, and at this time they utter a little piping noise; they retire to the coast, and, if the wind be favorable, set out immediately; but, if contrary, they remain for some time, and thus afford good diversion to those sportsmen who reside near the sea. The instant, however, a fair wind springs up, they embrace the opportunity, and where hundreds have appeared on one day not a single woodcock may be seen on the next.

This bird has a long, slender, straight bill, with which he searches for his food, worms and insects, in moist ground. The nostrils are linear, and lodged in a furrow; the head entirely covered with feathers; and the feet with four toes, the hind one very short, and consisting of several points. The hen may be distinguished from the male by a narrow stripe of white along the lower part of the exterior veil of the outermost feather of the wing. The same part in the outermost feather of the cock is elegantly and regularly spotted with black and reddish white. In the bastard wing of both is a small, pointed, narrow feather, very elastic, and much sought after by painters, as it makes a good pencil. These birds generally weigh from twelve to fourteen ounces.

Woodcocks build their nests on the ground, generally at the root of some tree, and lay four or five eggs, about the size of a pigeon's, of a rusty colour, and marked with brown spots: they are so remarkably tame during incubation, that they may be constantly looked at, and even stroked with the hand. Very few of them remain in England during the summer season; a few, indeed, have occasionally tarried, and the female has been known to make a nest and lay eggs. This may be probably owing to the birds having been wounded by sportsmen in the winter, which has rendered them incapable of taking their long journey the ensuing spring, and when they do stop in this country for the summer season, it seldom happens that two of them, male and female, are found together, and therefore woodcocks are very rarely bred in England, though the female will lay eggs.

These birds, which are more plentiful in

Ireland than in England, Wales, or Scotland, are chiefly found in thick covers, particularly those with wet bottoms, and underneath holly-bushes; they are not, however, fond of covers where there is long grass growing in the bottom, and at the roots of trees. In mild weather they are found chiefly in the open country, in hedge-rows, &c. but a severe frost forces them to the thickest covers and to small running-streams, which are sheltered with trees or underwood. The woodcock sees better in the dusk of evening and by moonlight, his sight being very indifferent in the day-time; and it must also be remarked, that these birds lie much better the day following a moonlight night than when it has been preceded by a very dark one; on this account, by the light of the moon they are enabled to make a plentiful repast, and the next day are consequently lazy and unwilling to fly; but, when the darkness of the night deprives them of food, necessity compels them to seek it in the day-time, which otherwise they never attempt.

In woodcock-shooting small springing spaniels are chiefly used; they give notice when the bird rises by barking; and, when well-trained, these dogs answer very well; in fact they are better adapted for this than for pheasant-shooting: but a good setter will be found, even in cock-shooting, to be fully equal, if not superior to, the springer.—Pointers are as little fit for this diversion as for pheasant-shooting.

Woodcock-shooting is a pleasant amusement in covers, which are not too thick; and if the covers be cut through in several places it becomes more easy to shoot this bird in his passage when he rises, and also to mark him with more certainty. The woodcock is a clumsy walker, and rises heavily from the ground, the general case of birds with long wings and short legs. It is thought that this bird, as well as the snipe, rises from his bill. When a woodcock is found in an open field, a hedge-row, the pass of a wood, or an unfrequented lane, he generally skims the ground slowly, and is very easily shot: indeed, thus circumstanced, he is the easiest of shots: but, when he is flushed in a tall wood, where he is obliged to clear the tops of trees before he can take a horizontal direction (at which time he frequently rises very high, and with great rapidity) then it becomes difficult to seize the moment of shooting, by reason of the turnings and twistings which he is obliged to make in order to pass between the trees. A person is often employed as a beater, which is highly necessary, and may be very useful at the same time in marking. A good marker is of essential service; with his assistance it will be difficult for a woodcock to escape, as he will generally suffer himself to be shot at three or four times before he takes a long flight.

Some have asserted, that too much noise cannot be made. Certainly more noise may be made in woodcock-shooting than in any other, but all that is necessary is what the beater makes with his staff in the thickets and hedges, and more than this will be detrimental to the sport. The use of bells is also a bad custom.

SNIPE-SHOOTING.

The shape and plumage of the snipe are much the same as the woodcocks, and, indeed, its manners and habits are similar.

There are three different sizes of snipes, and the largest is considerably smaller than the woodcock. The common snipe, which was supposed to be the hen, though the contrary has been proved, weighs about four ounces; the jack-snipe is about the size of a lark; and the largest weighs about nine ounces.

These birds are to be found all the winter in wet and marshy grounds, particularly where there are rushes: they are also to be found on mountains and moors, among the heath; but a severe frost forces them to springs and running-streams. The common snipe remains in this country all the year, and breeds in marshes, laying generally six eggs, about the latter end of May. The jack snipe is supposed, like the woodcock, to go to a more northern latitude to breed, though he is sometimes seen in summer, which may arise from accidental causes. The greatest part of the common snipe migrate, though numbers are known to stay and breed from choice.

Snipe-shooting is difficult, and the sportsman must be experienced before he can make a perfect aim, on account of the zigzag manner in which the bird flies immediately after rising. The best method is to walk down the wind, as snipes generally fly against it; and, when he rises, he will not fly far before he turns, and makes a sort of a semicircle: by thus remaining longer within gun-shot, there will be more time to take aim; but if the bird fly straight forward, it will be highly proper to let it get some little distance, as its flight will become much steadier. The slightest wound is sufficient to bring these birds down to the ground.

In snipe-shooting, an old pointer is the best, for to accustom a young dog to snipes slackens his mettle, and renders him of little use for partridge or grouse-shooting, owing to his getting a number of points with little exertion. Indeed, when these birds are plentiful, a dog is unnecessary, for walking up to them will answer equally as well. At all events, a dog used for grouse-shooting should never be taken to set snipes, as it will not only injure him, but cause disappointment to the sportsman; for these birds are sometimes found on the moors in the grousing season, and a grouse-shooter would be mortified if his dog made a mistake.

There is a fierce little hawk, called the merlin, a bird of passage, which visits this country in winter only, that is a great enemy to snipes: it has a beautiful plumage of dusky blue on the back, and a breast and belly inclining to yellow. He destroys numbers of snipes in the course of the winter. Abundance of them are also taken by the country-people, who live where these birds frequent, by means of a sort of a snare, sometimes called a pantle.

WILD DUCK-SHOOTING.

Wild ducks in winter, and especially in frosty weather, may be found with most certainty at the dawn of day, and in the dusk of the evening, when they are in search of food. During severe frosts they are compelled to seek those springs and running-streams that do not freeze, for the purpose of finding aquatic herbs, which, at this time, constitute their only food. The shooter should then follow the course of these streams. On large pieces of water small boats are useful, and the dog best calculated for this diversion,

is a water-spaniel, which having been previously taught to fetch and carry, will, in case of a duck falling after being shot, bring it immediately out of the water. The places frequented by wild ducks must be approached with as little noise as possible, and the sportsman must take his chance of their rising within gun-shot, as *setting* this kind of game is impossible. The sportsman should be well clad, and have a strong pair of water-proof boots.

The instinct of the wild duck is remarkable; the author of the "History of Derbyshire," (Mr. Pilkington,) was one afternoon walking in a path leading through a coppice, not much frequented, and passing some brambles, the roots of which were clothed with long grass, he espied a wild duck, with several young ones by her side. He was almost close to her before the parent perceived the danger, when she instantly uttered a loud note of alarm, and bounded almost close to his feet; then, with another jerk, threw herself a little forward, out of the reach of his hand, as he stretched it out to take up what he supposed an easy prey. Another hop and flutter threw her to a greater distance; while he pursued, supposing her to have both a leg and wing broken. He marked the bush with his eye, where he saw the young ones, concluding that he could take them at his leisure, after having secured the dam. He briskly continued his pursuit, while the bird persevered in counterfeiting lameness and inability of flight, throwing herself forward to a distance proportioned to his speed, but sufficient to clear his grasp, yet near enough to encourage his hopes. At length, chagrined, and increasing his pace, he began to run, while the bird, on his nearer approach, alternately rose a little on the wing and tumbled upon the ground, thus keeping up his attention till she led him more than half a furlong from the spot where he first perceived her. Rising suddenly above his head, she then winged her flight as in triumph, to a marsh, at the distance of nearly a quarter of a mile, in which there was a large pond, where she alighted secure. Disappointed in obtaining her, he consoled himself by considering that he could certainly take the young ones, and retraced his steps to the bush for the purpose. He examined the spot with care, turning back the grass in every direction for some distance around, and even beat about the contiguous brushwood, but in vain: no ducklings were to be seen, nor could his utmost search discover them. Nature had taught them, when the parent gave the note of alarm, to provide for their safety by escape and concealment.

THE GUN.

It will be needless to expatiate on elevated ribs, patent breeches, water-proof and collision locks, and similar inventions of the present day, it being evident that gun-barrels of different constructions carry with various degrees of truth and efficacy. Experience has also proved, that barrels of the same principles and construction, and, indeed, by the same maker, carry also very differently; a circumstance probably arising from a local difference in the component metal which in some barrels more than others contains certain visible blotches, and streams or veins, as it were, indicative, perhaps, of its softer, more elastic and malleable qualities.

Such has been the demand for barrels of this latter description, that the makers, in order to render their articles more saleable, have used many and various corrosive preparations, in imitation of the same.

The patent breech, and the hollow plug, as well as many other suggestions and expedients, of the like novel nature, have had their respective advocates.

Waving, however, the investigation of such a variety of opinions as prevails on the introductions of the present day, we shall proceed only from such data as are universally admitted in the formation of the gun-barrel, as necessary to execution. And in stating that a thorough welded barrel, of metal nearer to the extreme of soft than hard, five-eighths of an inch and one half in the caliber, from thirty-four inches to three feet in length, having a common six or seven threaded plug quite up to the touch-hole, of a perfect cylinder, will throw shot at thirty-five or forty yards regularly, and so efficaciously, as against any hard substance, like a stone, completely to flatten the same, can be proved by referring to the fowling-pieces used by our forefathers, amongst whom may be named as good shots as any of the present day; and, on the principles just mentioned, with the exception now and then, but not always so, of a little widening at the muzzle, yet not enough to constitute the bell-mouth, very many of the ancient pieces were constructed, though some seem of opinion that what is called *chambering* was in former times universally practised. That a barrel of the above construction will, at times, kill much farther than forty yards, as above mentioned, cannot be doubted; but, for our present purpose, it will suffice to observe, that in common shooting, by far the most game drops considerably within that distance.

As in other mechanism, it often happens that the greatest utility results from the most simple contrivance; a common roller lock, of truly wrought materials, with a well-tempered hammer, having such length in the respective springs that they may work smoothly and equal the one to the other, will, with good powder, promote such instantaneous ignition, that on firing, the noise of the working of the same (of the lock) shall be entirely lost in the scarcely subsequent explosion. So that any one who knows on what principles to try and select, may, at this day, be furnished with both barrel and lock perfectly to his satisfaction, from a first-rate maker, at a very moderate price.

To command large and distant objects, such as wild-fowl, it requires only that the instrument to carry the same number of pellets, four times as large as those used in the common fowling-piece, should be increased in a given ratio, and on similar principles. The almost incredible number of wild ducks, and other aquatic birds of equally strong pinion, killed, many at the enormous distance of one hundred yards and upwards, on King's Sedg-Moor, Somerset, prior to the reclaiming of this wild and extensive morass, sufficiently prove the efficacy of the ducking guns, as they were then called. And of these, one of which hangs over the fire-place of almost every cottage on the borders of the Moor, as now out of commission, nineteen, at least, out of twenty, have, with the exception of a little widening at the muzzle, a barrel of a perfect cylinder. And from what other than those plain principles alluded to, not only in the barrel, but in the lock also,

does many a game-keeper, now-a-days, with an old fowling-piece, for which, from its appearance, a stranger would bid only a trifle, effect such execution in a day's sport as would puzzle the philosophy of the most scientific maker.

That certain effects result from certain causes is within the comprehension of the meanest abilities, nor can the proof of the same affect our gun-makers, whose superiority over those in every other country, Spain, so much in vogue in former days, not excepted, is universally acknowledged.

It may be looked on as presumption to say that our gun-makers would surpass all the inventions of the present day, great as are the emoluments, according to some of them, through the medium of a patent, could they hit on a plan by which the fowling-piece could be made to raise more speedily, and mechanically as it were, to the shoulder, the muzzle and breech being on its arrival equal to the eye, which, however appropriate in their latter respect, it may seem, in our cooler moments, is very rarely so, when snatched up (as is sometimes necessary in cover-shooting) in an instant of time. The more experienced are aware, that, with the proviso above-mentioned, the least farther motion, the smallest jog only, if I may so say, transversely or perpendicularly nearer the object, as circumstances may require, is necessary to almost infallibly killing on the wing. Moreover, with the said proviso, there will be no need of shutting an eye, confusion, nor discomposure of the person, as any stander-by may see, that the best shots, who are generally very particular as to how the gun meets the eye, are the least flurried, and take apparently the least pains Nor is an aim directly at the centre of the object, if, as said before, the muzzle and breech be equal, indispensible. Three or four inches above or below it will commonly bring the bird to the ground, and a much less accurate one will often prevent its escaping

For gunstocks we select chiefly the heart of the walnut-tree, sound no doubt, and capable from its solidity and veins of a fine variegated polish. A part of the wood, however, we remove from this, and which some gunsmiths call the sap, is more tough, and though not capable of such a polish, is yet less liable to spring, and not so weighty. Of this the French seem sensible; many are of opinion that even their double-barrelled pieces, which have this lighter stocking, meet the eye with singular celerity.

A keen sportsman has generally a favorite gun, and it is chiefly from the readiness of coming up rectilineally to the eye in the time of need, that it becomes so. In proof of this observation, after many years adherence to a fowling-piece of this favorite stamp, let any one have the barrel thereof fresh mounted, and he will find the difference, although the original stock was lent to the smith as a model, in nine instances out of ten, if not in the shop, at least in cover-shooting, where, for a whole day together, it often happens that (what are called) snap shots only can be obtained.

To what has been here advanced, may be added this general observation, viz. that the inside of the gun-barrel, and the surface of every thing in, on, through, or from, which powder can experience the most instantaneous ignition, must be as smooth as possible. Any roughness whatever, any visible porosity, even the smallest thread, caused by in-

direct drilling of the touch-hole, will entertain and prolong the fusion, if it may be so called, and produce a diminution of effect.

That the fowling-piece is an object of the first consideration will be readily admitted, and every sportsman should be able to form an opinion of its merits, that he may not lay out a considerable sum of money uselessly, or incur those dreadful accidents which proceed from causes by no means obvious at first sight.

GUNPOWDER.

Conspicuous as gunpowder will ever appear among human inventions, we need trace no farther towards its origin than to the period when the due proportion of its component qualities became so ascertained as to create a new era in the system of European warfare. By the like principles, indeed, was it rendered subservient to the purposes of the chase. Before this, the hunter and the warrior were equipped in the same manner; nor could offensive weapons only have secured the former against the savage objects of his pursuit. To either were necessary, the shield, and the spear, the bow, and the battle-axe. In proportion to the increase of civilization, however, in all warlike expeditions, these latter instruments have been laid aside, and the musket, with the bayonet, has been substituted in their stead. We no longer see the bow or the spear, but in remote and savage tribes, where probably they will long continue, from their superior efficacy, where so much depends on stratagem and silence.

In a comparatively interminable extent of country, as the interior of the continent of America, where deer are so numerous, and where it were next to impossible to get a second view of the object of pursuit, noise or explosion would scare the herd, whilst the silent messenger of death might wing its way, without causing such alarm as would prompt to evasion, indeed, without discovering by what power the same was impelled, or from what quarter it came. Of fire-arms, the first on record is the matchlock as it was termed, rude and unwieldy; then, such as were, for the sake of experiment, of various weight and calibre, both in brass and iron, till we hear of the musket and the fusee, and at length the fowling-piece, which, in point of efficacy, was completed by an improvement on the invention of the lock, and the expedient of a greater degree of granulation in gunpowder. Thus has this composition been rendered subservient to one of the most gentlemanlike amusements; which can be pursued in no part of the world, whether we consider the game we are in quest of, or the practicability of the soil for travelling, so eligibly as in England.

As we are informed from experience, that powder by the same maker is not always of equal efficacy, our surprise must cease when we find a difference in that which we have from different makers. The difference in that by the same maker, is generally caused by an original deficiency in the constituting properties of one or more of the ingredients; the other receiving therefrom an overdue and preponderating influence. To be always sure of good powder, it should be had *ipso facto* from the maker himself, immediately after trial, and precisely from this time should it be kept in vessels which admit nei-

ther air nor exudation. Dampness to any degree will, in the respective particles, cause a tendency to dissolution. For this reason it should be kept constantly in well-dried glass bottles, closely corked; nor can powder, once having imbibed dampness approaching to wet, ever be so recovered as to be uniformly powerful. To the respective loads, according to the partiality of the mischief incurred, will attach a proportioned deficiency of effect. To the quick process of drying powder, generally adopted, many other objections may be urged, besides that of the grains being thereby hardened to an improper degree. If the article be kept as above described, there will be no necessity whatever of drying, and the respective loads will then have each its due and respective power.

BURSTING OF BARRELS

This generally arises from improper treatment. If, by any means, in loading, the shot be not rammed home close on the powder, and a space be left between the powder and shot, the gun will probably burst on being discharged. Should the space be very small, and the shot lie so as to leave a little windage, (i. e. admit a small quantity of air to pass) the barrel will most likely remain whole; but if, instead of shot, a bullet be used, which exactly fits the bore, the accident will most indubitably ensue: for a moderate charge of powder, when it has expanded itself through the vacant space, and reaches the ball, will, by the velocity each part has acquired, accumulate itself behind the ball, and, thereby, be condensed prodigiously: the barrel, therefore, must be of extraordinary strength in that part if it escape.

This accident may take place from the mouth of the piece being filled with earth or snow, which sometimes happens in leaping a ditch, with the muzzle of the piece pointed forwards. For the same reason the barrel will burst if fixed when the muzzle is thrust into water, a very little depth only below the surface; the resistance given to the passage of th inflamed powder through the mouth of the piece being in this case much greater than that afforded by the sides of the barrel. Independent of these, a barrel may burst from a defect in the work: for instance, if the barrel have been imperfectly welded, or a deep flaw taken place in any part of it; or, lastly, if for want of care in boring, or filing, it have been left of unequal thickness in the sides. The last defect is common, especially in low-priced barrels. The elastic fluid, which is let loose by the inflammation of the powder, and which endeavours to expand itself equally in every direction, being repelled by the stronger parts, acts with additional force against the weaker ones, and frequently makes its way through them, which is not the case if the sides be of equal strength, and afford an equal repercussion. The weakness of any part of the barrel, occasioned by the inequality of the calibre, will be a more certain cause of bursting than that produced by the filing; because the inflamed fluid being suddenly expanded at the wider parts, must suffer a compression before it can pass onward, and the whole force is then exerted against the weak place: as gunpowder acts in the radii of a circle, and exerts the same force on every part of the circumference.

The conclusion to be drawn from this is, that a thin and light barrel, which is perfectly upright, that is, of equal thickness in every part of its circumference, is much less liable to burst than one which is considerably thicker and heavier, but which, from being badly filed or bored, is left of unequal strength in its sides.

Great attention should be paid to the keeping of the barrel perfectly clean. If a barrel be fired only once, it should be well washed with hot water before it be laid by, (unless it be used again in the course of the same day;) for, after firing, the barrel will quickly become moist, and this moisture will speedily communicate a very corrosive rust, occasioned by the evaporation of the saltpetre used in making gunpowder. After the barrel is well washed with tow, or a piece of flannel, wrapped round the rod, it should, by continual friction with the rod, be made thoroughly dry, and afterwards be rubbed, both inside and out, with only tow or flannel. The breech need seldom be taken out if the gun be properly treated.

The best oil for the barrel, as well as the lock, is that which is obtained from sheeps' feet; but neats' foot oil will answer the purpose, or that which is procured from the fat of horses: whichever is used should be first clarified, for which the following is the best method:—

Put several small pieces of lead or a few shot, into the bottle containing the oil, and let it remain uncorked. The feculent matter will adhere to the lead, and leave the oil extremely clear. If the oil be thick, it should be exposed to the sun, or kept in a warm situation, while it undergoes the operation of being clarified.

SHOT.

The patent shot is now generally used, and it is important to the success of the chase that the sportsman should proportion the size of the shot, as well to the particular species of game he means to pursue, as to the season of killing it.

In partridge-shooting, during the month of September, No. 7, 8, or even 9, may be used, (though some choose No. 6, and others, more ridiculously, 3, or 4,) for, at this time, birds spring near at hand, and their feathers are less capable of resisting the shot, than at a more advanced period of the year. Hares, also, at this season, sit closer, and are more thinly covered with fur.

About the beginning of October, at which time partridges are stronger in the wing, No. 5 will, perhaps, answer best. This size seems to preserve a proper medium between shot too large, and that which is too small, and will kill a hare at the distance of forty, or even sixty, yards, and a partridge at seventy, or more. In short, it is adapted for all seasons, and many sportsmen use no other. It is true, that distant objects are frequently missed for want of larger shot; but, then these bear no proportion to the number which are missed by using shot of too large a size, especially with the feathered game, which enables them to escape in the vacant spaces of the circle or disk described by the shot.

Grouse require larger shot than partridges, as they are stronger birds. The same may be said of pheasants. No. 5 will be found large enough for the strongest game.

For snipe-shooting, mustard-seed is generally used, and is certainly the best adapted

for this diversion. It is the smallest of all, and called, in some places, dust-shot.

Swan drops are the largest shot, a few pellets of which will weigh an ounce.

The following table (though considerably different from Mr. Thornhill's scale) will exhibit the method by which the different sizes of shot are distinguished, and also show the gradations:—

B. B.	one ounce contains 58 pellets.
B.	65 ditto.
No. 1.	82 ditto.
2.	112 ditto
3.	135 ditto.
4.	177 ditto.
5.	218 ditto.
6.	261 ditto.
7.	289 ditto.
8.	660 ditto.
9.	970 ditto.

The numbers are continued several degrees lower than No. 9, but are not common.

GENERAL OBSERVATIONS.

Every one who begins shooting should take warning, from the many serious misfortunes that have too often occurred: he should start with the determination of never suffering a gun, at any time, to be held for a moment, or even carried, so as to be likely to come in the direction of either man or beast

In order to make an old gun shoot well, if the barrel be of sufficient substance, of tolerably good iron, and perfectly sound, first bore it, so as to have friction downwards, and this gradually relieved forwards; then put in a chamber plug, and lastly, give immense strength to the mainspring of the lock. In a stout barrel, even the deep flaws may be easily got rid of, by means of making it red hot, and beating them in before you fresh bore it.

Some, even if they had the means, might not be perfect masters of the boring; but the perforated plug, and the strengthening of the mainspring, would very much accelerate the firing of a musket; and some of these barrels, if properly loaded, often make a very effectual substitute for a duck-gun.

For such, the proper charge would be about two tobacco-pipes full of powder, and the same measure of large shot; but, as this had better be regulated by the recoil of the piece, the following rule may, with a trifling alteration, according to circumstances, be applied to all duck-guns and others:—

Load with powder and shot by equal measure in as large a quantity as can be fired with ease to the shoulder, putting the wadding strong on the former, and light on the latter.

Water-boots are absolutely necessary for those who shoot in wet places, or wait in cold nights for wild fowl, and, if good, will effectually repel the water for a long time. They should be drawn over an extra pair of coarse yarn stockings; and so far from being hard to the feet, they are exceedingly light and pleasant wear.

Various dressings are recommended, though, perhaps, almost any grease may answer. The first application, however, should be,

Tar, tallow, and bees'-wax, melted, (not too warm) and then poured into the boots; which, after having this shaken

into every part of them, should be hung up to let it run out.

Or,

Drying oil	1 pint
Yellow wax	2 ounces
Turpentine	2 ounces
Burgundy pitch . . .	1 ounce,

Melt these over a slow fire, and then add a few drachms of essential oil of lavender, or thyme.

With this the boots should be rubbed, some distance from the fire. The application must be repeated as often as the boots become dry, until they are fully saturated.

COOKING OF GAME.

As cookery-books are generally defective in their directions for cooking game, we shall here insert Mr. Hawker's instructions on this subject:—

"In choosing birds you cannot be guided better than by selecting those which of their kind are the heaviest in weight, and the least beautiful in plumage. Young birds may be distinguished by the softness of their quills, which in the older ones will be hard and white. The females are, in general, preferable to the males; they are more juicy, and seldom so tough. For example, a hen-pheasant (provided it be not a very dark-coloured one, which denotes an old barren hen, that is good for nothing,) or a duck is to be preferred to a cock pheasant or a mallard. The old pheasants may be distinguished by the length and sharpness of their spurs, which in the younger ones are short and blunt. Old partridges are always to be known, during the early part of the season, by their legs being of a pale blue, instead of a yellowish brown; so that when a Londoner receives his brace of blue-legged birds in September, he should immediately snap their legs, and draw out the sinews, by means of pulling off the feet, instead of leaving them to torment him, like so many strings, when he would be wishing to enjoy his repast. This remedy of making the leg tender removes the objection to old birds, provided the weather will permit of their being sufficiently kept; and, indeed, they are then often preferable, from having a high flavour.

"If birds are overkept, their legs will be dry, their eyes much sunk, and the vent will become soft, and somewhat discoloured. The first place to ascertain if they are beginning to be high, is the inside of their bills, where it is not amiss to put some hether straw, or spice, if you want to keep them any length of time. Birds that have fallen in the water, or have not had time to get cold, should never be packed like others, but sent openly, and dressed as soon as possible.

"Sportsmen are often heartily abused by their acquaintance, for sending them 'tough and good-for-nothing game;' while all the blame should, in many instances, rest with themselves or their pudding-headed cook, who, may be, dresses an old pheasant, or hare, the very day after it was killed; or, perhaps, while engrossed in a story, or argument, leaves it to roast away, till there remains neither juice nor flavour.

"All game, &c. should be kept til properly tender; or, if wanted in a hurry, it may be picked, wrapped up in a cloth, and thus buried in the earth for a few hours, before it is dressed. This is the custom abroad,

where I have supped on wild-fowl, perfectly tender, that were killed since an early dinner on the same day.

"With regard to dressing birds, there are so many various methods, for which every cook or epicure has his favorite receipt, that it would be absurd to enter on the subject; but, as so many fail in adapting their sauces to wild-fowl, I shall take the liberty of giving one that has been preferred to about fifty others; and was, at one time, not to be got without the fee of a guinea.

"RECIPE FOR SAUCE TO WILD-FOWL.

"Port wine, or claret	1 glass
Sauce a la Russe (the older it is the better)	1 table spoonful
Catsup	1 ditto
Lemon-juice	1 ditto
Lemon-peel	1 slice
Shalot (large)	1 sliced
Cayenne pepper (the darkest, not that like brickdust)	4 grains
Mace	1 or 2 blades,

To be scalded, strained, and added to the mere gravy, which comes from the bird in roasting.

To complete this, the fowl should be cut up in a silver dish, that has a lamp under, while the sauce is simmering with it.

Let a goose, or any strong or fat wild-fowl, be roasted, with the addition of a small onion and a pared lemon in the inside, as this will draw out the strong fat, and give the bird a milder taste.

"Hares and rabbits, when old, have blunt claws · are broad across the back; their ears are very tough; and, when cut, their flesh curls up, and remains dry. The first joint of their fore-leg is larger and stiffer than in young ones, and their jaw-bones are very hard. In young hares and rabbits, all is the reverse to this; their ears are easily torn, and their jaw-bones may be cracked with the fore-finger and thumb."

THE KENNEL.

As a stable is the proper home for horses, a kennel should also be devoted to the use of dogs. It is true, hounds have sometimes been kept in barns and stables, but their keepers have soon discovered, that they have been thereby rendered good for nothing. On this subject Mr. Beckford says:—

"Cleanliness is not only absolutely necessary to the nose of the hound, but also to the preservation of his health. Dogs are naturally clean animals; they seldom, when they can help it, dung where they lie; air and fresh straw are necessary to keep them healthy. They are subject to the mange; a disorder to which poverty and nastiness do very much contribute. *This*, though easily stopped at its first appearance, if suffered to continue long, greatly lessens the powers of the animal, and the remedies which must then be used, being in themselves violent, often injure his constitution; it had better be prevented. Let the kennel, therefore, be your particular care.

> "Upon some little eminence erect,
> And fronting to the ruddy dawn; its courts
> On either hand wide op'ning, to receive
> The sun's all-chearing beams, when mild he shines,
> And gilds the mountain tops."

"Such as Somervile directs may be the

situation; its size must be suited to the number of its inhabitants: the architecture of it may be conformable to your own taste."

Though the poet recommends a high situation for the kennel, yet Mr. Beckford thinks water should be preferred. He also wishes it to be as near the master's house as possible, though there are many objections to its being near; but there are still more to its being at a distance; "there is a vulgar saying," he observes, "that it is the master's eye that makes the horse fat; it is even more necessary in the kennel, where cleanliness is not less essential than food."

A kennel should be made large enough at first, as any addition to it afterwards must spoil the appearance of it. It should be neat without, as well as clean within. The following is Mr. Beckford's plan for the accommodation of hounds:—

"Two kennels are absolutely necessary to the well-being of the hounds; when there is but one, it is seldom sweet; and, when cleaned out, the hounds, particularly in winter, suffer both whilst it is cleaning, and as long as it remains wet afterwards. To be more clearly understood, I shall call one of these the *hunting-kennel,* by which I mean that kennel into which the hounds are drafted which are to hunt the next day. Used always to the same kennel, they will be drafted with little trouble; they will answer to their names more readily, and you may count your hounds into the kennel with as much ease as a shepherd counts his sheep out of the fold.

"When the feeder first comes to the kennel in a morning, he should let out the hounds into the outer court; at the same time opening the door of the hunting-kennel, lest want of rest, or bad weather, should incline them to go into it. The lodging-room should then be cleaned out, the doors and windows of it opened, the litter shaken up, and that whole kennel made sweet and clean before the hounds return to it again. The great court and the other kennels are not less to be attended to, nor should any omission that is hurtful to the hounds be passed over in silence.

"The floor of each lodging-room should be bricked, and sloped on both sides, to run to the centre, with a gutter left to carry off the water, that when they are washed they may be soon dry. If water should stand through any fault in the floor, it should be carefully mopped up, for as warmth is in the greatest degree necessary to hounds after work, so damps are equally prejudicial."

It will be sometimes necessary for the master to see that his work is done; and equally necessary to be able to give his directions. "Orders given without skill are seldom well obeyed, and where the master is either ignorant or inattentive, the servant will be idle."

"Contrary to the usual practice in building kennels, there should be three doors; two in the front, and one in the back; the last to have a lattice-window in it, with a wooden shutter, which is constantly to be kept closed when the hounds are in, except in summer, when it should be left open all the day. This door answers two very necessary purposes; it gives an opportunity of carrying out the straw when the lodging-room is cleaned, and, as it is opposite to the window, will be the

means to let in a thorough air, which will greatly contribute to the keeping of it sweet and wholesome. The other doors will be of use in drying the room, when the hounds are out, and as one is to be kept shut, and the other hooked back (allowing just room for a dog to pass) they are not liable to any objection. The great window in the centre should have a folding shutter; half, or the whole of which, may be shut at nights, according to the weather; and the kennels by that means may be kept warm or cool."

The two great lodging-rooms of Mr. Beckford's accommodation for hounds are exactly alike, and as each has a court belonging to it, are distinct kennels, and are at the opposite ends of the building; in the centre of which are the boiling-house and feeding-yard; and on each side a lesser kennel, either for hounds that are drafted off, hounds that are sick or lame, or for any other purposes, as occasion may require; at the back of which, as they are but half the depth of the two great kennels, are places for coals, &c. for the use of the kennel. There is also a small building in the rear for hot bitches. The floors of the inner courts, like to those of the lodging-rooms, are bricked, and sloped to run to the centre, and a channel of water, brought in by a leaden pipe, runs through the middle of them. In the centre of each court is a well, large enough to dip a bucket to clean the kennels; this must be faced with stone, or it will be often out of repair. In the feeding-yard there should be a wooden cover.

The benches, which must be open to let the urine through, should have hinges and hooks in the wall, that they may fold up, for the greater convenience of washing out the kennel; and they should be made as low as possible, that a tired hound may have no difficulty in jumping up; be it also observed, that the boiler should be of cast-iron.

The rest of the kennel should consist of a large court in front, which should be also bricked, having a grass-court adjoining, and a little brook running through the middle of it. The earth taken out of Mr. Beckford's was thrown up into a mount, where the hounds in summer used to sit. This court was planted round with trees, and had besides a lime-tree and some horse-chesnut-trees near the middle of it, for the sake of shade. A high pale inclosed the whole, part of which, to the height of about four feet, was close, the other open; the interstices were about two inches wide. The grass-court was pitched near the pale, to prevent the hounds from scratching out. The posts in the courts were for the conveniency of the hounds; for, as Mr. Beckford observes,—"This is done to save the trees, to which the urinary salts are prejudicial. If they are at first backward in coming to them, bind some straw round the bottom, and rub it with galbanum. The brook in the grass-court may serve as a stew; the fish will be very safe.

"At the back of the kennel should be a house, thatched and furzed up on the sides, big enough to contain at least a load of straw. Here should be a pit ready to receive the dung, and a gallows for the flesh. The gallows should have a thatched roof, and a circular board at the posts of it, to prevent vermin from climbing up."

A stove is made use of in some kennels; but, where the feeder is a good one, a mop,

properly used, will render it unnecessary.—Mr. Beckford prepared a little hay-rick in the grass-yard, which is of use to keep the hounds clean and fine in their coats; they will be found frequently rubbing themselves against it; the shade of it also is useful to them in summer. If ticks at any time be troublesome in the kennel, let the walls of it be well washed, if they still remain, the walls should then be white-washed.

In the summer, when you do not hunt, one kennel will be sufficient; the other then may be for the young hounds, who should also have the grass-court adjoining to it. It is best at that time of the year to keep them separate, and it prevents many accidents which otherwise might happen; nor should they be put together till the hunting season begins. If the hounds are very quarrelsome, the feeder may sleep in a cot, in the kennel adjoining; and, if well chastised at the first quarrel, his voice will be sufficient to settle all their differences afterwards. Close to the door of the kennel let there be always a quantity of little switches, which three narrow boards, nailed to one of the posts, will easily contain.

Mr. Beckford's kennel is close to the road-side, but it was unavoidable. This is the reason why his front pale is close, and only the side ones open; it is a great fault; when avoided the hounds will be the quieter.

The mount answers all the purposes of an eminence; there should be moveable stages on wheels, for the hounds to be upon, and the soil should be a dry one.

ON FEEDING OF DOGS.

Much of the health and comfort of this animal depends upon judicious feeding, as many complaints are occasioned by improper diet. The want of food, and the excess of it, frequently produce the same disease. A dog badly fed will, in the course of time, contract the mange, and an over-fed dog will be subject to the same complaint.

The dog is neither wholly carniverous nor wholly herbiverous, but of a mixed kind, and can receive nourishment from either flesh or vegetables. A mixture of both is therefore his proper food, but of the former he requires a greater portion, and this portion should be always determined by his bodily exertions.

Sportsmen in the country use various mixtures for food; in some kennels meal and milk are constantly given, and dogs will thrive on this diet during the season they do not hunt; but, when their exertions are required, this food will not be sufficiently nutritious. All the meals are used for this purpose, but wheat-meal is the most preferable, when it can be procured, it being the least likely to produce a heated skin; barley-meal and oat-meal are most frequently given, and are sufficiently nutritious when mixed with either milk or broth; but, when constantly used, they may be productive of the mange. Potatoes, without meal, will be a wholesome food for dogs which are not exercised, and are sufficiently nutritious when mixed with milk or butter-milk.

When circumstances render it absolutely necessary to feed dogs principally on barley or oatmeal, the heating effects will be greatly obviated by mixing it with butter-milk. Indeed, butter-milk is an excellent cleanser in all cases of foulness, the mange, canker, &c. When it is most convenient to feed them on

potatoes, and the food is not sufficiently relished, let them be mixed with greaves, or other fatty matter, and they will then be greedily swallowed. Greaves are, indeed, a convenient food, and, when mixed with a sufficient quantity of vegetable matter, form a hearty meal for large dogs, who are kept in yards, and are in continual motion.

Horse-flesh is a strong, nutritious food for dogs who undergo great exercise, but it should not be given continually, or in great quantities. Animal food should never be given to dogs more than once a day, as he digests his food very slowly, a full meal of flesh not being digested in less than twenty-four hours. If full fed with meat, once a day will be sufficient, except the allowance per day be divided, and which will be more salutary, as a dog swallows his victuals very greedily. Hard-worked dogs, as soon as fed, should be shut up, to encourage sleep, for digestion is promoted more by sleeping than by waking.

Parsnips, carrots, cabbages, and, indeed, all vegetable matter, will feed dogs sufficiently well for the purposes of their existence. Damaged ship-biscuit is often bought for the purpose of food, and it makes a very good one, when soaked in broth or milk. The broth, or liquor, in which salted meat has been boiled, should never be used for this purpose; dogs, who have been confined on ship-board, during a long voyage, have contracted a very bad kind of mange, owing to their being fed on salt pot-liquor.

No meat should be given to a dog raw, as it is productive of the distemper, and many other dangerous disorders. The best food for kennels near cities, or large towns, is tripe, or haunches of sheep, which, after being thoroughly cleaned, should be boiled half an hour or forty minutes, in a moderate quantity of water. When taken from the water they should be hung up to cool, and the boiling liquor they came out of poured on bread raspings, if possible those of French bread. The quantity of raspings should be so regulated, that when soaked and cold, the mess may be of the consistence of an ordinary pudding before boiling. The paunches, being also cold, but not before, should be cut into fine pieces, and mixed with the soaked raspings. When raspings cannot be got, meal, or biscuit, may be substituted. The mixture may be made to contain more or less animal matter, by increasing or lessening this proportion of paunch, or by adding other animal matter; though the tripe, of all animal substances, is allowed to be the purest food, and tends least of all to make a dog gross. If deemed necessary to render this mixture more nutritious and enticing, the offal, or intestines, of chickens and other fowl, may be procured from the poulterers, and boiled with the tripe. Of all substances in general use, except horse-flesh, the entrails of chickens is the one most eagerly sought after by dogs, and fattens them soonest. The venders of baked sheep's heads sell the trimmings for dogs' food, which is exceedingly wholesome and nutritious.

In feeding dogs, their size and strength should be considered, and their allowances should be accordingly. All kinds of bones, except fish-bones, may be thrown to them at any time; indeed, the stomachs of these animals are often benefitted by the action of these bones

In the feeding of favorites, much error is frequently committed; for their tastes being consulted, they are too apt to be wholly fed on flesh, and this in great quantities too. It may always be in the power of those who feed them to bring their dogs to live on vegetables entirely, if they wish it. Let the usual quantity of meat a dog eats be minced exceedingly fine, and a small portion of mashed potatoes be mixed with it; it will not be possible for the dog to separate the animal from the vegetable portion, and if he will not eat the mixture, let it remain till hunger obliges him to relish it. At the next meal, let an additional quantity of potatoes be added, and, by these gradual means, the animal may be brought to live entirely on potatoes, or any other vegetable. In a medical point of view, a vegetable diet is often very important. In many cases, a complete change of food forms the very best alterative, and, in others, it is an excellent auxiliary to a medical course. The cases that require a change from a meat to a vegetable diet are eruptive diseases, and other affections arising from too full living; also coughs, and various inflammatory complaints.

It has been observed, that no flesh should be given to a dog raw; yet, on this subject, there is some diversity of opinion. "In a state of nature," according to the arguments of a modern writer, "it is evident that dogs live on raw meat, and there is no doubt that this best fits them for very active exercise, and enables them to perform all their functions with the greatest vigor: when flesh can be procured sweet and fresh, in that state it will go farthest and nourish most." It is impossible for this writer to ascertain how long a dog lives in a state of nature, or to enumerate the loathsome disorders to which he may be subject. Flesh should be always dressed for dogs, but by no means overdone; it will be then more nourishing, and, we will venture to add, more wholesome, than raw meat. Dogs accustomed to dressed meat will not relish it if given to them raw; and, perhaps, not eat it until hunger obliges them, for hunger alone rendered it familiar in a state of nature. Since domesticated, these animals have become more numerous, and less exposed to the calamities of life, owing to the salubrity of comfortable kennels and regular food.

ON THE DISEASES OF THE DOG.

HYDROPHOBIA.

The name of this disorder is derived from two words in the Greek language, signifying *the dread of water,* and this is the most distinguishing feature by which this disease may be known. At the sight of water, not only a mad-dog, but a human being, who has the hydrophobia, will shudder, and turn from it with the greatest agitation. Dogs are liable to other diseases, the symptoms of which, in some degree, resemble those of madness; but, in no other case will the dog manifest that dread of water, as he does when seized with the hydrophobia. Notwithstanding, some writers insist that it is a misnomer, and that mad-dogs, now and then, court the water. In the first stage of the disease, they never drink; but, when they become insensible, they may fall accidentally into rivers, and cross them without drinking; they may, also, dip their mouths (but very rarely) into vessels of water, but still they are incapable of swallowing any of the liquid. Disorders, in general, take their names from their chief characteristics, though sometimes those characteristics never appear: those writers, therefore, who complain of the impropriety of the term *hydrophobia,* and insist that mad dogs do not feel any dread of water, seem to confound non-madness with real madness, or one stage of the hydrophobia with another.

The following are other symptoms of the hydrophobia:—

The dog becomes melancholy, droops his head, forbears to eat, seems to forget his former habits, and, as he runs, snatches at every thing; he will often look upwards, and his tail be partly erect, and partly hanging down: when his eyes become red, his breath strong, his voice hoarse, and he drivels, and foams at the mouth, he should be immediately destroyed; for, if suffered to be at liberty, he will break away, and run as fast as possible over an extent of country, biting every living creature he meets, and rendering others, in the course of time, as mad as himself.

Though the first symptom of hydrophobia be generally a loathing of food, dogs in this state have been known, occasionally, to eat solid meat. At the very commencement of the disease, he is particularly inclined to smell and lick the private parts of other dogs. For the first two or three days, there may appear intervals of sense; nevertheless, he will generally bite every thing that comes in his way, and leave home for several hours, returning again. He will shortly afterwards manifest a disposition to quarrel with other

dogs, and totally lose his appetite; he will betray no symptoms of fear, nor cry out when struck; but his eyes will become remarkably dull, and his lips and tongue seem foul and glossy.

We have already observed, that when a horse is bitten by a mad dog, it is better not to trust to fallacious remedies: the destruction of the animal is necessary for the preservation of mankind. Though the Ormskirk medicine, and others, have been recommended, they have not been always efficacious. The best cure for a mad dog, we are told, is *hanging*, but as this may be attended with serious consequences to the person who applies the rope, the discharge of a pistol or gun will be found more speedy and secure.

In 1812, a little strange black dog was seen to bite a hound, belonging to Mr. Tanner, of Wivelsfield, near Lewes; but without creating any suspicions as to its consequences until about the end of three months, when the bitten hound betrayed strong symptoms of hydrophobia, and, in that state, inflicted the dreadful bite on upwards of twenty other sporting dogs, the property of Mr. Tanner, who, much to his credit, caused them all to be instantly killed, regardless of the value of his harriers, which, together, formed a very staunch little pack.

This dreadful disease has no stated period for making its appearance: in some instances, the symptoms have been discovered in a week or ten days, and in others, not for months: the infection seems to lurk in the blood, and when the malady is thus disguised, the best physician may be mistaken. A dog may drink water freely, and betray no agitation at the sight of a stream, till the fever comes on; which is, therefore, very properly termed, *hydrophobia*. A dog, supposed to have been bitten by one that is mad, should be immediately shot; for, being ignorant of the precise time when the disease may break out, many months may elapse in painful anxiety.

After a dog, supposed to be mad, has been killed, the following is deemed a certain remedy to ascertain the point of his madness:—

Take a bit of bread, rub it on the teeth and gums of the dead dog, and offer it to a living dog: if he refuse to eat it, the other was mad; but if he eat it, he was not. This, however, is not a satisfactory proof; but, probably, a piece of meat, instead of bread, might render it so.

There are seven sorts of canine madness.

1. THE HOT BURNING MADNESS.

This is the most dreadful stage of the hydrophobia; and

2. THE RUNNING MADNESS,

Which is equally dangerous. The effects of these two sorts have been already described, and they may be justly regarded as incurable, notwithstanding the merits of the Ormskirk, and Chapman's medicines. Every animal which dogs, inflicted with such madness, bite, and draw blood from, will have the same disease: they generally bite all they meet, but particularly their own species; and, it is remarkable, that all dogs, even the most courageous, will fly at their approach; and, if unfortunately attacked, will howl, and make every effort to disengage themselves.

A mad dog always runs straight forward,

and it is said, (with a great degree of probability) that a person, by turning out of the road, may avoid him, as the dog will not follow him. The hot burning madness, and the running madness, are both known by the common appellation of

THE RABIES,

The animal being then furious and outrageous, and very properly termed *rabid*, by medical gentlemen.

3. THE FALLING MADNESS.

This disease, which is so called on account of its lying in the dog's head, makes the animal reel and fall down, and is often mistaken for fits. For the cure of this disorder,

Take,—Juice of briony . . 4 ounces
Juice of peony . . 4 ounces
Staves-acre pulverised 4 drachms,

Mix together, and administer with a drenching-horn: also, bleed the dog in the ears, and in the two veins that come down his shoulders.

4. THE SLEEPING MADNESS,

So called from the drowsy nature of the dog, which seems continually desirous of sleep. This disorder is occasioned by little worms that are bred in the stomach by corrupt humours, the fumes of which ascend to the head: for the remedy,

Take,—Juice of wormwood . 6 ounces
Powder of hartshorn, burnt . . . . . 2 ounces
Agaric . . . . . 2 drachms,

Mix together in a little white wine, and force it down with a drenching-horn.

5. DUMB MADNESS.

This disease lies in the blood, and causes the dog not to feed: he keeps his mouth wide open, and frequently rubs his feet against the sides of it, as if he had a bone in his throat. For the cure,

Take,—Juice of black hellebore 4 ounces
Juice of spatula putrida 4 ounces
Rue . . . . . 4 ounces,

Strain them well, and add,

Unprepared scammony, 2 drachms,

Mix and force it down, and then hold the head of the dog up for some time to prevent his throwing out the medicine: after which, bleed, by cutting two or three veins in the gums.

6. THE LANK MADNESS.

This madness is termed *lank*, on account of the dog's leanness and pining away, and is generally considered as incurable. The following remedy, however, is said to have been administered with effect:—

Jalap . . . . . 15 grains
Calomel . . . . . 3 grains,

The next day give,

Linseed oil . . 2 table spoonfuls,

Which repeat occasionally.

7. THE RHEUMATIC, OR SLAVERING MADNESS.

This disease occasions the head of the dog to swell, and his eyes to appear yellow, he will also slaver and drivel at the mouth.

Take,—Powder of the roots of polypody of the oak 4 ounces

Juice of fennel-root	.	6 ounces
Root of misletoe	.	6 ounces
Juice of ivy	.	4 ounces,

Let them be boiled together, and the liquor given to the dog as hot as he can take it.

Hence it appears, that there are some sorts of canine madness which are curable; and, yet such is the natural dread of encountering this animal, when supposed to be mad, that many dogs have been put to death through false apprehensions: the cry of a *mad dog!* occasions an instant pursuit, and a poor animal, when hunted, will certainly bark and bite in his own defence. The effects, however, of hydrophobia are so dreadful, that no one can be too cautious; formerly, persons labouring under this disorder were smothered by feather-beds: the following recent case will sufficiently prove its melancholy consequences:—

Henry Rix, a youth, son of George Rix, a boatsman of Southsea, near Portsmouth, was bitten in the cheek and over the eye by a mad dog, on the 25th of March, 1814. He continued very well until Friday morning, the 13th of May, when he complained of being indisposed. His friends gave him a cordial, with the hope of relieving his pain, but he grew worse, and complained of great thirst: it was with great difficulty he was prevailed on to take medicine. He complained exceedingly of violent pains in his chest and throat, and, on seeing water that was brought into his room, his agony greatly increased. He foamed at the mouth sufficiently to wet many cloths, and frequently exclaimed—"Oh! father, is that from the dog?" The medical gentleman who attended him tried profuse bleeding, but without any good effect. His symptoms were very strong: he could not bear the sight or sound of water, and even the inconsiderable quantity produced by his mother's tears, (who leaned over him and wept) created great distress. He retained his senses until within a few hours of his death, when the effects of the disorder were extremely violent, but the paroxysms abated about an hour before he expired: he died, May 15.

Cutting and burning have often failed with man and beast, but have been sometimes successful: indeed, it depends upon the part bitten, which, in the above case, could not have been cut away; and the lancet must be immediately applied after the bite, in order to prevent the infection from spreading in the blood. Profuse bleeding has been found efficacious. Suffocation by water, before the hydrophobia takes place, will, it is supposed, obviate the infection, and restore the frame to its former vigor. This is a desperate remedy, and few patients, we believe, would submit to the experiment.

William Stark, of Norwich, was unfortunately bitten in the year 1810, by a dog that died of hydrophobia only twenty-four hours after he received the wound. The bite was on the back of his left hand, very deep, and about two inches long. He thought, at the time, that the best method to prevent the virus from being carried into the system would be to decompose the parts by the application of a substance that would act effectually, and also mildly; he, accordingly, poured into the wound a quantity of muriatic acid, preferring this to any other of the mineral acids, as its action on animal matter

is not so violent. In the course of about ten minutes, its effect on the wound was such that he supposed there could be no danger of the infectious matter being absorbed. He then washed the hand with a dilute alkaline liquor to neutralize the acid, and prevent any further action. In the course of a fortnight, by dressings of simple cerate, the wound was perfectly healed. This circumstance he communicated to a friend who happened to be in the west of England, at a time when there was considerable alarm about mad dogs, and, in consequence thereof, he took the precaution of keeping a phial of muriatic acid in his pocket. This gentleman having seen two horses and a pig bitten, instantly applied the acid to the wound of the horses, but not to the pig; the former of which actually remained unaffected, but the latter died of hydrophobia the twelfth day after it was bitten. *(Sporting Magazine for December,* 1814.*)*

Another instance of successful treatment in a case of hydrophobia was published in a Calcutta paper, May 15, 1812.

"On Tuesday, the 5th instant, a bheestie, who had been bitten three weeks before, in the leg, by a mad dog, was carried to the Native Hospital, about three o'clock in the afternoon, with the symptoms of hydrophobia strongly upon him. He was immediately bled to the extent of forty ounces. The symptoms of disease yielded in succession as the blood flowed; and, before the vein was closed, he stretched out his hand for a cup of water, and calmly drank it off, though the mere approach of water, but a few minutes before, had thrown him into convulsions. After the bleeding, he lay down on a cot, fell asleep, and continued so for nearly two hours. When he awoke, the symptoms of the disease were threatening to return; another vein was then opened, and eight ounces more of blood were taken away, which so completely subdued the disease, that he has not had a symptom of it since.

"A case lately published in the Madras papers, as successfully treated by bleeding, mercury, and opium, led to the practice adopted in this instance, and which, it is highly gratifying to remark, has been much more successful than even on the former occasion; the cure in the latter case having been almost instantaneously effected, and that by bleeding alone, without the aid either of mercury or opium; for, though these remedies were subsequently used, it was quite evident that the disease was previously and entirely overcome by the bleeding."

The following case, which occurred at Atcham, near Shrewsbury, will be found interesting, as it fully corroborates the successful mode of treatment which had been practised by Mr. Tymon, of the 22d Dragoons, at Arcott, and Dr. Schoolbred, at Calcutta. The present case is thus detailed by Mr. Wynne, of Shrewsbury:—

"Abraham Cooke, who resides at Atcham, four miles distant from Shrewsbury, was, upon the 22d of January, 1813, bitten in the hand by a pointer bitch, bearing evident signs of being mad. He almost immediately walked to Shrewsbury. On his arrival, the bitten part was excavated by Mr. Thomas Sutton, surgeon. The wound soon healed, and he continued in good health and spirits, always making light of the accident, until the 5th of February, when he began to complain

of an uneasiness and soreness in that part of his hand where he had received the injury.

"On the 6th and 7th, it became gradually worse; and, on the 8th, in the morning, after a restless night, he arose with increased pain and soreness in his hand, attended with headache, sickness, and oppression at the pit of his stomach: his breathing was difficult. Notwithstanding these symptoms he went to his work, but very soon became much worse. He was prevailed upon to drink some warmed beer, and was immediately seized with violent vomitings. He with difficulty reached his home, and on his way was much distressed, as he apprehended that the people then passing were determined to ride over him. His wife pressed him to take some water; he shewed great dread of it, and could not be prevailed upon to drink any, assigning, as the reason of his objection, the pain and vomiting occasioned by swallowing the beer. She then procured some surfeit-water, to which he made the same objection; she put it to his mouth, but could not say whether any was swallowed; if any, it must have been a very small quantity. All the symptoms rapidly increased: his looks were frightful; his eyes staring and inflamed; his face likewise was inflamed, and his features were distorted, and indicated the greatest dread and anxiety. With difficulty he was detained in his bed, and he appeared to be watching, and anxious to escape some object which occasioned his distress.

"At this time, (about one o'clock *p. m.*) I was passing through the village, and was desired to visit him: I found him in the situation related. In a very short time afterwards his head, and also his left hand and arm, appeared convulsed. I waited to hear the history of the accident from his wife, and then pressed him to drink some water; I could not prevail; and, although I did not observe any additional horror at the moment, still it was evident he was too much agitated to be able to drink. I was truly anxious for the advice and assistance of my much-esteemed friend Mr. Thomas Sutton; at the same time I was aware that the delay of an hour might hazard the life of our patient. I, therefore, had recourse to the abstraction of a large quantity of blood, and allowed it to flow until he fainted. He remained for near an hour with scarcely a perceptible pulse; and it was evident, during the whole time, that his disease was abating. His countenance became composed, and much paler; his eyes were less inflamed, the convulsions ceased, and, to my complete satisfaction, he enquired if he might drink some water; which, when it was brought to him, he seemed to enjoy. I now left him, desiring that, if any return of his disease took place, I might be immediately acquainted. I sent him large doses of opium, with calomel and James's Powder, adhering, as closely as possible, to the successful plan adopted by Dr. Schoolbred, and communicated in the Medical and Physical Journal for January, 1813.

"On the 9th, at seven o'clock in the morning, I again visited him. He had slept the early part of the night, but had been disturbed with horrid dreams; at the same time he told me, 'he had not been half so much alarmed by his dreams, as he was with the appearance of the dog in his room, the day before, and which did not leave the room until he fainted from the bleeding.'—He

seemed agitated, said he was dreadfully ill, and should never sleep again. There were convulsive startings in his hand, wrist, and shoulders. He told me he thought there was something alive in his wrist—he refused to take either coffee or water. His countenance was composed and thoughtful; he started at the slightest sound or motion; and said every kind of noise distracted his brain, and that his neighbours had been making a noise on purpose all night. I repeated the bleeding, and the result was exactly the same as before described—he fainted: and from that time was perfectly composed, until about three o'clock *p. m.* when his wife thought for a moment she observed a twitching in his shoulder.

"On the 10th, I saw him comfortable.—On the 11th, after sitting up for some time, he was much fatigued and fainted. I was sent for, and, upon my arrival, his wife said, she was 'sorry I had been troubled to come, as the fit was nothing like what I had seen before, and was not more than such as he had been accustomed to when he had been drinking hard, or was much tired, and that it was against her consent that the messenger came.' I was satisfied, from appearances, she was right; and I left him without any apprehension. Since that time I have regularly visited him, and there has not been one outward symptom. He is now apparently well, excepting that his mouth is sore from the effect of the mercury

"Immediately on my return from Atcham, on the 8th, I called upon Mr. Thomas Sutton, and requested him to take the earliest opportunity of observing the case, and begged that he would have the kindness to suggest any thing that he thought likely to be of service. He and Mr. Sutton, as well as others of the profession, have been present."

Some writers admit of only two varieties of this complaint, the raging and dumb madness, and others insist that there is no distinction. If, however, the dumb madness can be cured or removed, and the raging madness never can, there must be some distinction. The effects are different according to the different parts attacked: when the inflammation exists most in the bowels, it generally produces an affection of the neck and throat; this affection consists in a trifling enlargement of all the parts around; the tongue hangs out, and is discoloured, and from a partial paralysis of the muscles of deglutition there is frequently a difficulty of swallowing. This case is attended with greater stupor and distress, and with a marked weakness of the hinder parts. Though the dropping of the jaws be termed dumb madness, it is often accompanied by howling.

When the lungs are the principal seat of affection, there is usually more irritability in the dog's manner: he rather barks with a hasty tone, than howls; snaps at passing objects, and shakes his tail with seeming violence. The tones of voice should be particularly attended to in dogs suspected of madness: a mad dog generally makes a characteristic noise between a bark and a howl, but bordering upon the latter.

We have remarked that a rabid dog is the terror of his own race, as well as of mankind: but this is contradicted by a writer who, alluding to the attempts of some mad dogs (when the paralysis and stupor are not extreme) to make their escape and rove about, observes:—

"It is not an attempt to run away altogether, neither *is it at all the effect of delirium*; but it is a most peculiar instinctive disposition to effect the propagation of the disease. Such a dog *trots* along, and industriously looks out for every other dog within his reach or sight. Whenever he discovers one, either little or large, he goes up and smells to him in the usual way of dogs, and then immediately falls on him, usually giving him one shake only; after which, he commonly *trots off again*, in search of another object. The quickness with which this attack is made very frequently surprises the bitten dog, so much as to prevent his immediately resenting it; but nothing is more erroneous than the supposition that a healthy dog instinctively knows a rabid or mad one. I have watched these attacks in numerous cases, and I have seen the mad dog tumbled over and over, without the least hesitation, by others that he had attacked."

This writer has been more *fortunate* in his observations than others; and, according to his exposition, we may well exclaim—"If this be *madness*, there is *method* in it." Every person of experience knows that a dog seized with hydrophobia runs straight forward, bites indiscriminately every object before him, horse, cow, hog, sheep, and even man. If a dog gradually trot along, if he approaches another, and smell to him *in the usual way of dogs*, and, after giving him a shake, trot off again, his madness is questionable; and to the speedy cures of such alone may be ascribed the celebrity of advertised powders and drinks.

It is a pity this experienced veterinary surgeon has not informed us how a mad dog approaches a horse, pig, cow, &c. as he trots along. Instead of a *supposition*, it is a *fact*, that healthy dogs, however courageous, will endeavour to avoid a mad dog; nor is this instinct, so wisely ordained by Providence, to be wondered at, for the appearance of a dog, really rabid, is terrific. Some years ago, a bitch, on becoming mad, was avoided by her own whelps, one of whom she unfortunately bit: the rest, however, were drowned through an apprehension that the disease might be hereditary.

Hydrophobia, it is said, has been cured in Germany by large doses of vinegar, but the efficacy of this, and other supposed antidotes, particularly immersion, or salt-water suffocation, has never been satisfactorily proved. This disorder chiefly rages in hot weather:—

"When Syrius reigns, and the sun's parching beams
Bake the dry gaping surface, visit thou
Each ev'n and morn, with quick observant eye,
Thy panting pack. If in dark sullen mood
The glouting hound refuse his wonted meal,
Retiring to some close, obscure retreat,
Gloomy, disconsolate; with speed remove
The poor infectious wretch, and in strong chains
Bind him suspected. Thus that dire disease,
Which art can't cure, wise caution may prevent."

The best preservatives from this baneful disorder are plenty of water, whey, greens, physic, air, and exercise. Let the hounds be well observed at the time when they feed, and there can be no danger whilst they eat. Remove a hound in time if he refuse his meat, and if the whole pack be in the same predicament let them be chained up separately. Pretended cures sometimes protract the disorder, as they have been the occasion of its breaking out a long time afterwards.

Suspected dogs should be immediately separated from the rest, and a short time, if no remedy be used, will prove whether they are really bitten or not. If desirous of trying a remedy, Mr. Beckford recommends the following prescription, which has also been suggested by Dr. James:

Turbith's mineral . 8 grains,
Next morning,
Turbith's mineral . 16 grains,
And, on the third morning,
Turbith's mineral . 32 grains,

The dose is to be given three mornings successively. The dog should be empty when he takes it, and bled the previous day. The dose should be given early in the morning, and the dog may have some thin broth, or pot-liquor, about two or three o'clock, but nothing else during the time he takes the medicine. The best way to give it is in butter, and made up into balls with a little flour. Care must be taken that he does not throw it up again. After the last day of the medicine, he may be fed as usual.

All remedies, however, are fallacious, though various are the drenches and medicines which are given for hydrophobia, and said to be infallible.

THE DISTEMPER.

This is another grievous disease, frequently fatal to the canine race. It has not been long known in this country, but it is almost inconceiveable what numbers it has destroyed in so short a period. It seems, happily, to be now on the decline; at least, it is less frequent, and more mild; and, probably, in time, may be entirely removed. In 1803 it carried off a great number of cats; but, ever since, it seems to have been confined entirely to dogs. Before this disorder was known, hydrophobia was more prevalent; yet there is a great difference between the two maladies: puppies are not so liable to madness as full grown dogs, but they are more liable to the distemper. A dog seldom drinks freely in the distemper: in hydrophobia he never drinks, though he may, perhaps, make the attempt. In hydrophobia the dog loses all recollection of persons and places, and will as soon bite his master as any other person; but, in the distemper, he retains his recollection, and never bites.

The virulence of this disease may be prevented by diet. If a young dog be fed on high food (i. e. carrion, raw flesh, &c.) he is sure to have the distemper violently; but, if fed with potatoes and butter-milk, or skimmed milk, or potatoes alone, with weak broth occasionally, and a small dose of sulphur now and then, he will not suffer by the distemper, and will require little or no medicine.

Some recommend inoculation, which is truly absurd, as dogs frequently escape it, and, if attacked, are subject to a repetition of it. The mode of inoculation, is to take the infectious matter from the nostrils of a distempered dog, which is placed with a rowel in the healthy dog's neck, or through one of his lips, rubbing at the same time a little on his nose, and forcing a little, with a feather, up his nostrils; in a day or two after inoculation, about two table-spoonfuls of castor-oil are given. It is said that the cow-pock inoculation will prevent the distemper.

It was the opinion of Mr. Taplin, that this disorder was nothing more than a most violent obstruction in the bowels, for which he found no cure but by administering glysters; and that every case was nearly similar, each (after repeated glysters had been given) having voided a hard mass, composed of hay, straw, sand, &c. A gentleman, who was under the necessity of destroying a valuable pointer, which was in the last stage of this disorder, had him opened, but, after a careful examination, could not observe the least obstruction in the bowels: he afterwards supposed that the disorder might originate from obstruction of the bile; and he was told by a professional man, who once opened a greyhound, that the contents of the gall-bladder in that was in colour similar to tar.

In another dog that was dissected, the throat was much swollen, and almost choaked with slime, and the stomach, besides being full of the same stuff, had on one side a considerable ulcer, very much inflamed. There did not appear to be any absolute obstruction in the bowels, but in every part the slime seemed to have deprived the animal of his natural tone.

We are informed, by Mr. Blaine, that the distemper appears to vary in different seasons. In one year most of the cases that occur prove distressing, from the obstinate looseness that accompanies the disease; in the next year fits, perhaps, will be the prevailing symptom; while the third year will exhibit the complaint in a most putrid and malignant form. Fits are most prevalent in winter, and purging in summer. The varieties are so numerous, that hardly any two cases can be treated alike; consequently, no one remedy can be applicable to every case

Such are the contradictory opinions on this subject; and the following facts will prove the fallibility of the Distemper Powder.

In the spring of 1810, a famous poodle bitch, then about ten months old, caught the distemper, either from cold, by being shorn too early in the year, or from another dog that came to the house, and had it very badly. By the assistance of Mr. Blaine's medicines the virulence of the disease was got over, but the animal remained in the most distressing state of weakness, so much so as to be unable to stand, accompanied by convulsive twitchings in every part. Mr. Blaine advised the gentleman to destroy her, but, being a great favourite, he was loth to do so while a chance remained of saving her. A person who saw her recommended very strongly bathing in cold water, which he determined to try. The evening previous to the experiment, he had her bathed and well washed in warm, water to cleanse the skin, that the cold water might have the greater effect. He had a large brewing-tub filled with spring water, into which he plunged her every morning for six weeks, the good effects of which were visible after the first two or three days, and, at the expiration of that time, she was perfectly recovered.

Another states, in the *Sporting Magazine* for June, 1813, that his faith in Mr. Blaine's medicine made him persist in it till he lost almost every good dog he had: he then though reluctantly, changed his system, and from that day never lost a dog in the distemper:—

"When the husky cough and slimy discharge from the mouth and nose appeared, I gave the dog, in the morning, two large teaspoonfuls of common salt, in a ball of butter,

and led him about till he vomited and cleared his stomach of slime. As soon as he was quiet I gave the same quantity of flour of sulphur, and as much powder of antimony as I could lift at once on a sixpence. The greatest difficulty has always been to get the dog to eat; and, singular as it may seem, I have found loaf-bread, crumbled into warm tea, made with good cream, and rather sweet, the most grateful food I could give a dog in the distemper. Indeed, I have hardly seen a sick dog refuse to eat a little of this, but too much must not be put before him at one time. The greatest attention must be paid to cleanliness in every respect, and I have generally thought laying a dog near a fire had a good effect—but, I never confine him. According to circumstances, and the strength of the dog, I gave the medicine every day, or only every second day. In the latter case, I sometimes gave the sulphur without antimony, on the intermediate days. But I am never deterred at first from giving the physic through the disease having caused purging, believing that a dose of this sort is the best antidote to a scouring from internal disease. I have cured several high-bred dogs by these simple remedies."

As reason justifies the belief that this mode of treatment must be salutary, (except that of laying the dog before a fire,) we have given it publicity for the benefit of the sporting world.

In a "Series of Familiar Letters on Sporting, by R. Lascelles, Esq." we find the following observations on this subject:—

"On my return home, I found, to my regret, as well as surprise, that two of my best old dogs had caught the distemper, and to a degree of severity which scarcely left any hopes of cure; my man, however, had very properly confined them in a distant and separate situation, and I trust its further progress is, for the present, put a stop to. This is a species of disorder which no one has yet been able satisfactorily to account for; it spares neither age nor sex, and such dogs as happen unfortunately to be attacked by it, frequently retain its effects to a very distant period. From the nature and manner of its appearance, it may fairly be presumed to originate equally from external as internal causes; and, if I may be allowed the expression, both high and low, rich and poor, are obliged to receive the unwelcome visit. From the efforts which a dog affected with this disease frequently makes to throw off something offensive, it of course follows that the lungs are, in many instances, liable to the disease; and, every future symptom must depend upon the method pursued to remove the obstruction.

"In all cases of this kind, the remedy which is first applied is the most likely to be effective; and the following, if administered in proper time, I seldom knew to fail:—

"Take,—Calomel . . . 10 grains
Emetic tartar . 20 grains,

"Let these be made into a large bolus, and divided into twelve equal portions, one to be given every other morning fasting.

"The diet should be warm strong broth; and a single course of this medicine, in the earliest stage of the complaint, will effectually cure it; but, should it happen that the disorder has been making, for any time, a

secret progress, we must then pursue a more systematic method.

" The first symptoms are usually similar in all dogs; their eyes become heavy and dull, they are suddenly reduced in flesh, accompanied with a kind of dry husky cough, and an obstinate purging. If these are not speedily removed, they will be followed by a nasty moisture issuing from the eyes and nostrils, and an agitated motion of the limbs, so that the dog appears scarcely able to support himself. Good air and cleanliness, under these circumstances, are indispensible to a cure; *but the dog must not be allowed, on any account, to lie sleeping near a fire,* which only feeds the disorder, without any good whatever proceeding from it. A moderate degree of warmth is the best; and should the above recipe, after being twice administered, not have any visible good effect, I would immediately put a seton, or rowel, in the neck of the dog, which will give the course of the distemper a different direction, and draw it, at any rate, from the head: the eyes must be kept constantly clean with a sponge and water, and a mixture of warm vinegar and water should also be frequently applied to the nostrils, and every filthy appearance removed from them.

" Whilst the purging continues, the best food will not in the least improve the condition of the dog, although his appetite may be enormous, he will also, in all probability, continue dull and drowsy, and require some effort to rouse him even to his meals. You may, at times, observe these latter symptoms before others of a more alarming appearance, as the disorder puts on so many different forms, and continues through such a variety of stages; its effects being frequently confined to an individual, but generally embracing a wider and more destructive range; and, in some instances, it has acquired the character of epidemic.

" The two most dangerous symptoms are, at the beginning, excessive looseness, and afterwards fits. So long as the first continues, no medicine will have any effect, and a dog in this state can scarcely ever be persuaded to feed; to remove this, half-an-ounce of powdered gum-arabic, and the same quantity of prepared chalk, must be mixed together, and divided into twelve small balls; one, two, or three to be given during the day, until the purging is stopped: I would then decline any immediate medical process for a couple of days, during which time isinglass, boiled in milk, and given in small quantities every four hours, will assuredly relieve the dog from the effects of relaxation; the calomel and emetic tartar may be again administered, and, under such treatment, I have seldom known a dog but which eventually recovered.

" Fits are, of all symptoms, the most to be dreaded; and their violence is frequently of that nature as to prove immediately fatal; at least a dog seldom survives after a third. They generally appear when he has made considerable progress towards amendment, and you are, therefore, taken more by surprise, and unprepared: a perseverance in the medicine, after a supposed recovery has taken place, is the most likely method of preventing a relapse; and I invariably pursue this system to the extent of three doses, administering one every two days, and taking, at the same time, especial care to keep the animal particularly

warm. If the calomel should operate contrary to your intended purpose, that is, by promoting the purging, it will be advisable to give the dog about half a grain of opium, in twenty minutes from the time he had the previous dose, being also particularly careful that he is *well* and *warmly* supported. The usual ingredients, which are considered by many to be effective in this disorder, are Æthiop's mineral, syrup of buckthorn, and not unfrequently salt and water; these remedies are, by some, thought so precious and infallible, that they are handed down from father to son, with the same strict punctilio as the period of his wife's accouchement, and are often found to swell the page of that volume wherein is registered a long line of various ancestry.

"The distemper, some years ago, must have been either a very rare disorder, or unaccompanied by those dreadful symptoms which at present characterize it; and it may, perhaps, not be very idle to suppose, that it was occasionally mistaken for the hydrophobia, or madness; indeed, in many of its stages, the symptoms are so nearly alike, that a person, either through ignorance or alarm, might shield himself from the accusation of improper treatment, the veterinary art being then not only very partially understood, but as sparingly practised.

"To shew you how partial this disease sometimes is, both in the extent and manner of its attacks, I had lately three pointer whelps, of the same litter and sex, (all females,) and which had been suffered to remain with the dam, in a large open area in London, until they were three months old; at the end of that period, one of them, completely of a white colour, lost its appetite altogether, and was troubled with a violent sickness and continued purging, so that no physic could be made to act with any the most distant hope of success; a second, nearly all brown, was, in three days after, attacked in a different manner, merely by a simple wheezing, or more resembling a slight kind of hiccup, but without her spirits or appetite being in the least diminished; the third, which was of a colour betwixt that of the other two, never became visibly affected, or suffered in any degree whatever. To remove the purging was the first object, and this was effected, after considerable application, by the gum-arabic and chalk; the sickness disappeared soon after, and the entire cure was effected by three doses of Blaine's medicinal powders; one of these also was administered to the second whelp, on the first appearance of the cough, and another removed her out of danger. To guard, however, against any bad effects which might possibly ensue to the third, from being all the time confined with the others, I first gave two grains of emetic tartar, and, on the morning of the following day, one of the powders, repeating this last dose at the end of twenty-four hours. From the moment of attack to the period of amendment, the above were the only symptoms I could observe; and I have every reason to believe, except in the first instance, that the disorder was not of that excessive description, as I never found the spirits of any one to be in the least degree pulled down. I have mentioned the colour of the whelps, to shew that all opinions (and I know there are such,) upon their hardy or opposite nature, are idle and speculative: it is the inward state of the animal which. at

the time, must determine the probable consequences of the disease; but its bad effects will be considerably lessened, and, the good ones of the medicine invariably increased, by high and plentiful feeding."

Mr. Beckford was informed, by a brother sportsman, that his hounds had found great benefit from an ounce of Peruvian bark, in a glass of Port wine, taken twice a-day. It is not infallible; but, in some stages of this disorder, it is certainly of use. The hound most infected that ever Mr. Beckford knew to recover, was a large stag-hound; he lay five days without being able to get off the bench, nor did he receive any nourishment during the whole time but the medicine, with which he drank three bottles of Port wine. This sporting writer adds,

"I once tried the *poudre unique*, thinking it a proper medicine for a disorder which is said to be putrid; but I cannot say any thing in its favor, with regard to dogs, at least. Norris's drops I have also given, and with success. I gave a large spoonful of them in an equal quantity of Port wine, three times a-day; as the dog grew better, I lessened the quantity. When dogs run much at the nose, nothing will contribute more to the cure of them, than keeping that part clean; when that cannot conveniently be done, emetics will be necessary; the best I know is a large spoonful of common salt, dissolved in three spoonfuls of warm water. The first symptom of this disorder, generally, is a cough; as soon as it is perceived amongst my young hounds, great attention is paid to them. They have plenty of clean straw, and are fed oftener and better than at other times; as long as they continue to eat the kennel-meat, they are kept together; as soon as any of them refuse to feed, they are removed into another kennel, the door of the kennel is left open in the day, and they are only shut up at night; and, I think, being out in the air, is of great service to them. To such as are very bad, I give Norris's drops; to others emetics; whilst some only require to be better fed than ordinary, and need no other remedy. They should be fed from the kitchen, when they refuse the kennel-meat. Sometimes they will lose the use of their hinder parts; bleeding them, by cutting off the last joint of the tail, may, perhaps, be of service to them. I cannot speak of it with any certainty, yet I have reason to think, that I once saved a favorite dog by this operation. In short, by one method or another, I think they may always be recovered.

"The likeliest preservative for those that are well, is the keeping of them warm at night, and high fed. This disorder being probably infectious, it is better to provide an hospital for such as are seized with it, which should be in the back part of the kennel. There is no doubt but some kennels are healthier than others; and, consequently, less liable to it. I apprehend mine to be one of those; for, in a dozen years, I do not believe I have lost half that number of old hounds, notwithstanding the great number of whelps I lose at their walks. Neighbouring kennels have not been equally fortunate; I have observed in some of them a disorder unknown in mine: I mean a swelling in the side, which sometimes breaks, but soon after forms again, and generally proves fatal at last. I think I heard a friend of mine say, whose kennel is subject to this complaint,

that he never knew but one instance of a dog who recovered from it. I have, however, since known another, in a dog I had from him, which I cured by frequently rubbing with a digestive ointment: the tumour broke, and formed again several times, till at last it went entirely away. The disorder we have now been treating of, has this, I think, in common with the putrid sore throat, that it usually attacks the weakest. Women are more apt to catch the sore throat than men; children, than women; and young hounds more readily catch this disorder than old. When it seizes whelps at their walks, or young hounds, when first taken from them, it is then most dangerous. I also think that madness, *their* inflammatory fever, is less frequent than it was before this disorder was known."

The following medicines have been frequently successful:—

Calomel	1½ grains
Rhubarb	5 grains,

To be given every other day.

Jesuit's bark . . .	half-an-ounce
Dragon's blood . .	half-an-ounce
Gambage	half-an-ounce,

To be made into pills about the size of a hazle-nut, and one to be given every other day.

Great benefit has been also found from the syrup of buckthorn: its nature is to operate as physic, at the same time that it contributes, in some measure, to the nourishment of the animal. Many are fond of giving castor-oil, which, in general, a dog throws up almost immediately; this, however, never happens with syrup of buckthorn.

The following is Mr. Thornhill's treatment of this disorder:—

"When you first perceive the dog to be ill, give him half-an-ounce of salts dissolved in a tea-cup full of warm water, and at night, ten grains of compound powder of ipecacuanha in a little warm water, and keep him in a warm place. If you do not perceive him to get better in two or three days, give him sixteen grains of antimonial powder, and two grains of powdered fox-glove, mixed with conserve of roses, sufficient for four bolusses; give him one at night and morning for two days, and, on the third, a tea-spoonful of powdered Peruvian-bark, three times in the course of the day, in a little milk. If the distemper still increase, a rowel in the neck, as near the head as possible, will be found of great service. The rowel should be kept running till the dog recover, which will be in the course of a few weeks, if kept warm and quiet."

We are told, by this celebrated sportsman, that he almost invariably cured his own dogs in this manner; but he, no doubt, found it very difficult to administer the salts, &c

On this subject Mr. Blaine thus treats:—

"According to the mode in which the disease attacks a dog, so must the treatment be conducted. It is to the immense varieties in the complaint that we must attribute the endless number of remedies continually prescribed for it; every one of which, from being occasionally beneficial, becomes, in the mind of the person using it, infallible. Distemper, therefore, is seldom spoken of among a number of sportsmen, but every one of them knows of a *certain cure, one that has never failed with him* The varieties in the com-

plaint are so numerous, that hardly any two cases can be treated alike; consequently, no one remedy can be applicable to every case; for, however efficacious it may prove in a number of instances, a judicious attention must be paid to the varying symptoms.

'Perhaps two, out of every three cases, commence with dulness, inclination to sleep, wasting, shivering, some cough, with a flow of moisture from the eyes and nose. In these instances, the proper course is to commence with an emetic. Should there be any disposition to costiveness, if the dog be strong and fat, give also a mild purge." (Query, How can a dog be *strong* and *fat* when dull, wasting, and shivering?) "But if weakly, or the least inclined to looseness, abstain from the purge. After the emetic or purge has ceased to operate some hours, give one, two, or three grains of James's powder every morning or evening, or both, according as the symptoms are more or less urgent. But in cases where the cough proves very considerable, the following powders would be preferable:—

"James's powder .	12 grains
Powdered fox-glove	8 grains
Nitre, in powder .	half-a-drachm,

"Mix and divide into ten powders if the dog be small; into seven if middling sized, and into five if large, and give one night and morning. Continue this plan for two or three days, after which, *if the dog remain strong*, give another emetic, and when worked off, recommence the fever remedies. Should purging come on, discontinue these medicines; but, should no looseness appear, as soon as the inflammatory symptoms have somewhat abated, and which, instead of a watery moisture, the eyes and nose exude pus, or matter, then the fever remedies may, very properly, give place to others.

"Some cases will occur in which the weakness that is apt to ensue on the purulent state, renders the following plan of treatment necessary:—

"Gum myrrh	1 drachm
Gum Benjamin	2 scruples
Balsam of Peru	1 drachm
Camomile flowers, powdered	2 drachms
Camphor	1 scruple,

"Mix with honey, conserve of roses, or other adhesive matter, into twelve, nine, or six balls, according to the size of the dog, and give one night and morning.

"If very great weakness come on, if the matter from the eyes and nose flow rapidly, and the dog become fœtid, add two drachms of cascarilla bark, and a grain of opium. In such cases, also, strong gravies, or gruel made as caudle, with ale in it, should be given two or three times a-day. Meat-balls may be also forced down if the dog will not eat voluntarily.

"During every stage of distemper, and under every variety, except the very inflammatory state which occurs in the commencement, it is proper to feed liberally; and, as soon as the animal refuses his food, it is proper that nutriment should be forced down."

In his further observations on this canine malady, Mr. Blaine adds;—"it sometimes commences by a looseness, which is, unfortunately, often supposed useful. In which cases, from a fear of the consequences of checking it, the dog is very frequently brought so low as to be past recovery; but,

it is to be remarked, that in the very first stages, the purging should always be checked, if not entirely stopped; and, at all other periods of the complaint, it should be entirely and immediately stopped; at whatever period, likewise, it occurs, during the progress of the complaint, when other remedies are administered, it is proper that they should be suspended, and *astringents* only used, until the diarrhœa has entirely ceased, when the former remedies may be again had recourse to.

"Sometimes, though it is not very frequently the case, the distemper commences by a convulsive fit; in which instance, also, it is proper to commence the treatment by an emetic, and to follow it up by a purgative. It may be proper to remark in this place, that should fits come on during the progress of complaint also, immediately that the dog comes out of the convulsion, a very strong emetic should be given; and, in case other fits succeed after the emetic, the following may be tried:—

"Æther	1 drachm
Laudanum . . .	half-a-drachm
Camphor . . .	10 grains
Spirit of hatshorn	1 drachm,

"Mix, and give forty, sixty, or eighty drops, according to size, every hour or two, in a spoonful of ale. Keep the animal very warm, avoid irritation, force nourishment, and endeavour to shorten every fit by sprinkling cold water in the face, and, likewise, by soothing language and manner. If these means succeed, keep the animal quiet, and particularly refrain from giving much exercise."

As, according to Mr. Blaine's account, the varieties in this complaint are so numerous that no one remedy can be applicable to all, we need not wonder at the repeated failures of his *celebrated* distemper-powder, and are fully persuaded, that the most simple remedies, such as the before-mentioned, are the most efficacious: indeed, simple food, with occasional sulphur, has been found a complete antidote.

ASTRINGENTS.

Suet, boiled in milk, has been long a favorite domestic remedy; and, in slight cases, is adequate to the cure. Alum-whey has also proved useful, but more generally as an injection than by the mouth. Great benefit has also been derived from an infusion of the inner rind of the barberry, particularly when the evacuations have been viscous or slimy. In cases where there has been the appearance of much bile, and the animal is strong, after an emetic of ipecacuanha,

Give,

Powdered rhubarb . .	half-a-drachm
Powdered ipecacuanha	1 scruple
Powdered opium . .	3 grains
Prepared chalk . . .	2 drachms,

Mix into balls with conserve of roses, and give, from the size of a hazle-nut to that of a small walnut, two or three times a-day, according to the urgency of the case.

Or, give,

Catechu powdered . .	1 drachm
Gum arabic powdered	1 drachm
Prepared chalk . . .	2 drachms,

Mix, prepare, and give as above.

The following will, also, be found salutary:—

Magnesia	2 drachms
Powdered alum . .	1 scruple
Powdered colombo .	1 drachm

Mix with six ounces of boiled starch, and give a desert or table-spoonful every four, six, or eight hours.

It is necessary to be aware, that the action of astringents is varied and uncertain: in one case, one remedy only will be successful, and in another, a very different one alone will do good. Astringent clysters may be composed of alum, whey, or milk curdled with alum: suet, boiled in milk, is also good for the purpose: also, starch and rice.

APERIENTS.

Dogs more frequently stand in need of aperients than of astringents, as the chief of canine maladies proceed from costiveness. Clysters are easily administered, and are a most powerful stimulant to the bowels in obstinate obstructions. Aperient clysters may be made of veal, or mutton-broth, with a portion of salt, or moist sugar in them; the effect may be quickened by adding castor-oil, or Epsom-salts. The liquid should be warm, but not hot, and the quantity from three ounces to six or eight, according to the size of the dog.

FITS.

Dogs are subject to fits, and though these fits are not very different in appearance from each other, they arise from very different causes, and, consequently, require very different treatment. The epileptic fits, which are attended with strong convulsions, attack dogs of all ages, and even those which are apparently healthy. They generally arise from costiveness; the distemper, &c. and are very difficult of cure. In dogs of full habit, bleeding, emetics, and occasional aperients should be resorted to. The following medicines have been recommended:—

Take,—Calomel	12 grains
Powdered fox-glove	12 grains
Powdered misletoe	2 drachms,

Mix, and divide into nine, twelve, or fifteen parcels, according to the size of the dog, and give one every morning. After these have been fully tried, in case the attacks do not relax,

Take,—Lunar caustic, finely powdered . . .	2 grains
Cobweb	5 grains,

Mix these with conserve of roses sufficient to make nine, twelve, or fifteen balls, according to the size of the dog, and give one every morning.

Epileptic fits frequently proceed from

WORMS,

To which dogs are very subject. The tænia, or tape-worm, is a common kind, which is frequently coiled up into a ball, and becomes an impenetrable obstruction in the bowels. The long round worm is another kind, which makes its way from the bowels into the stomach. A third kind has short bodies, resembling maggots, with a red or black head; and the fourth kind resembles the thread-worm, and principally inhabits the rectum: these latter kinds are the least injurious.

Worms, though often destroyed, will soon return again, the constitution of the dog being peculiarly favorable to the breeding of worms. The tape-worm is very difficult to be wholly subdued. Some dogs continue for months and years to pass some joints every day, and sometimes without much apparent inconvenience. The danger in such cases is, that a sudden convulsive attack will ensue; and, sometimes, an inflammatory one. Worms are particularly fatal to puppies; and, when not fatal, if they exist in considerable quantities, they are productive of fatal maladies; in both the young and the full grown they commonly produce fits.

The treatment of worm cases in dogs has been like that of the human, and the remedies employed have been intended to expel them, or to destroy them within the body. The former is not attended with much benefit, and the expedients for destroying them within the body have been equally unsuccessful. Active purgatives are employed in the former case, which occasion debility, &c. For the destruction of them, mercurials, in small doses, pewter, tin, sulphur, bitters, and numerous vegetables have been tried. Cowhage seems to claim a considerable preference. When dogs can be made to take them, Epsom salts, in moderate daily doses, will both destroy and expel them. The thread-worms are best destroyed by aloetic clysters. The tape-worm has been removed by mercurial purges. The following remedies are strongly recommended:—

Cowhage . . . half-a-drachm
Common salt . . 1 drachm
Tin-filings, produced by a very thin file, 2 drachms

If the salt prove an emetic, it must be omitted.

Or,

Levigated iron . 1 drachm
Levigated tin . 1 drachm
Powdered fox-glove 8 grains
Powdered nitre . half-a-drachm.

Also,

Powdered jalap . . . 20 grains
Calomel . . . . . 3 grains
Golden sulphur of antimony . . . . . 4 grains,

Mix them with a little butter or lard, and give three of these doses, one every other morning. This remedy is generally efficacious.

Others have proposed as much arsenic as will lie on the top of a sharp pointed penknife, mixed with butter:—

Or,

Two or three purges of aloes;

Or,

Powdered tin . . 1 ounce,

Mixed with butter, and divided into three doses, and one given every other day.

Some dogs are so irritable, that whatever raises any strong passion in their minds, produces an epileptic fit: hence, dogs much confined, on being suffered to run out, frequently have an attack of this nature. This violence of disposition often produces fits in pointers and setters when hunting. The best remedies, therefore, are to give the former more exercise, and to habituate the latter to a greater plenty of game. Fear, in irrita-

ble dogs, also produces fits; therefore, such should be less threatened or chastised. Fits, also, proceed from the repletion of the vessels in the head; for which, bleeding, and an occasional purgative, are necessary; and whenever they become habitual, a seton should be applied, and kept in some months. The immediate fit may be removed at once by plunging the dog into cold water, or throwing water on his head. A healthy dog may have a fit through simple costiveness, and, in such case, an active purge should be administered: indeed, this remedy should be applied though the dog be not costive.

Bitches, while suckling, if burthened by too many puppies, are sometimes subject to very dangerous fits, or convulsions, which frequently prove fatal to them. No bitch should be allowed to rear more than two at a time.

Teething in puppies sometimes produce fits. Some sportsmen, aware of this, are apt to consider all the fits of puppies to proceed from this cause alone; though they may be the precursors of the distemper, or the effects of worms.

THE MANGE.

This is a chronic inflammation of the skin, dependant, in some instances, on a morbid action of the constitution; or it is the effect of infectious communication, and is thought to be the most disgraceful to the sportsman of any disease to which a dog is subject, as it is generally occasioned by neglect of some kind or other; by dirty kennels, foul water, filthiness, &c. The canine mange has been compared to the human itch, and it is thought to be capable of producing it. Undoubtedly, it may find its way to the cleanest kennel, as the human disorder sometimes visits the grandest mansion; both consisting of similar animalcules, lodged in the different protuberances.

The mange, when once contracted, will spread through all the dogs in the kennel, unless care be taken to keep them separate; and it deprives a dog, in a great degree, of his sense of smelling, but is easily cured on its first appearance.

This disease is of four kinds, the red, the common, the spongy, and the surfeit; the red mange is more difficult to cure than the common, but is less infectious. A bitch lined by a mangy dog is very liable to produce mangy puppies, and the progeny of a mangy bitch is certain to become affected some time or other. The morbid constitutional action by which mange is generated is excited by various causes, and in different ways. If a number of dogs be confined together, the acrid effluvia of their transpiration, &c. may beget a virulent mange, very difficult to be removed. If a dog be fed on salt provisions, it will become subject to the disorder, and full feeding, as well as poor living, will be a certain cause of it

The red mange is known by the red inflammatory colour of the skin: the whole skin of the body, particularly in white haired dogs, is in a state of active inflammation; it is hot to the feel, and itches intolerably. In this kind of mange, the hair is often specifically affected, and becomes altered in its colour, particularly about the extremities: it also falls off, and leaves the body almost bare. The strong course kind, called *wire-*

hair, is peculiarly liable to suffer this discolouration.

The following are deemed the best cures for the red mange: —

Powdered charcoal	1 ounce
Prepared chalk	1 ounce
Sugar of lead	1 drachm
White precipitate	2 drachms
Sulphur	2 ounces
Lard	5 ounces,

To be well mixed, and applied externally.

Or,

Mercurial ointment	1 ounce
Powdered aloes	2 drachms
Lard	6 ounces,

To be well mixed, and applied externally; but great care must be taken to prevent the animal catching cold. Mercurial ointment, though effective, is attended with considerable danger.

In slight cases of the red mange, the following will be found successful:—

Corrosive sublimate, powdered	6 grains
Liver of sulphur	half-an-ounce
Lime water	6 ounces,

To be mixed, &c.

Internal remedies are also necessary; the following is recommended as a proper dose:—

Æthiop's mineral	1 ounce
Cream of tartar	1 ounce
Nitre	2 drachms,

Divide into sixteen, twenty, or twenty-four doses, according to the size of the dog, and give one every morning or evening.

In desperate cases, when others are unsuccessful,

Take,—Oil of vitriol	10 drops
Flower of sulphur	half-an-ounce
Conserve of roses	1 ounce,

Divide into eight, twelve, or fifteen balls, and give one every day.

Mr. Beckford proposes the following remedy for the red mange:—

Quicksilver	4 ounces
Venice turpentine	2 ounces
Lard	1 pound

The quicksilver and turpentine are to be rubbed together till the globules disappear. When applied, an ounce must be rubbed once a day upon the part affected, for three successive days. This is only to be used when the hair comes off, or any redness appears.

The common mange may be cured by some brimstone alone, powdered fine, and taken inwardly, either in milk, or mixed with butter, or the powder may be made into an ointment with hog's-lard, and a small quantity of oil of turpentine, and the dog rubbed with it every day.

Large millet, and sweet turnip-roots boiled in cows' urine till it is like both, is a salutary ointment. The dog should be rubbed three or four times.

When the disease becomes obstinate, and scabby eruptions appear on various parts of the body,

Take,—Tobacco, in powder	half-an-ounce

White hellebore, in powder . . . . . half-an-ounce
Sulphur, in powder . 4 ounces
Aloes, in powder . . 2 drachms
Lard . . . . . 6 ounces

Mix it well, and rub once a-day for a week; let fresh straw be also put into the kennel every other day;

Or,

Powdered sulphur (yellow or black) . . . 4 ounces
Sal ammoniac, crude, powdered . . . . half-an-ounce
Powdered aloes . . . 1 drachm
Venice turpentine . . half-an-ounce
Lard . . . . . 6 ounces.

Mix it well, &c.

Or,

Powdered charcoal . 2 ounces
Powdered sulphur . . 2 ounces
Potash . . . . . 1 drachm
Venice turpentine . . half-an-ounce
Lard . . . . . 6 ounces.

Or,

Decoction of tobacco . . 3 ounces
Decoction of white hellebore 3 ounces
Corrosive sublimate . . . 5 grains.

Dissolve the corrosive sublimate in the decoctions, which should be of a moderate strength: when dissolved,

Add,

Powdered aloes . 2 drachms,

Which is always necessary in any mixture, to prevent it from being licked off.

Or,

Oil of vitriol . . 1 drachm
Tar . . . . . 2 ounces
Powdered lime . 1 ounce
Lard . . . . . 6 ounces

The following is not only a clean remedy, but, probably, the best:—

Fox-glove leaves . . 2 ounces.

Put them into a jug, and pour upon them a quart of boiling water: when cold, wash the dog, and repeat the washing every other day. A few washings will effect a cure.

The spongy mange requires the same wash that the red does. When the little spongy openings will admit of it, the wash composed of corrosive sublimate, liver of sulphur and lime-water, should be injected by means of a minute sponge. The general surface should also be anointed with

Ointment of nitrated quicksilver . . 2 drachms
Goulard ointment . 1 ounce
Washed flower of sulphur . . . . half-an-ounce,

To be well mixed before application.

The surfeit-mange requires little variety in the treatment, except that bleeding and purging are more necessary. In this, and all other kinds of the disease, when the sores are very irritable and much inflamed, it will be frequently necessary to allay the heat previous to external applications; for this purpose

Take,—Sugar of lead . 1 drachm
Spermaceti ointment 2 ounces.

When the irritation is allayed, apply the washes directed for the red mange.

Many are apt, in using ointments, to smear them over the hair, without applying them to the skin: it requires, at least, two hours to dress a dog properly. The hair should be parted, and the ointment applied entirely to the skin, by means of a stick. After every part is done, let the hair be smoothed down, and the dog will appear, when the operation has been well performed, as if nothing had been applied. After three or four dressings in this manner, the dog may be washed with soft soap and water, and this ointment again applied till the cure is complete. In old and bad cases of the mange, it will be necessary to continue the treatment for several days, as the complaint has been known to continue for months.

We should always take care to prevent the mange. Air, exercise, wholesome food, and cleanliness are the best preservatives; though, during his exercise, a dog may catch it from a stranger. Mr. Beckford says, that the feeder should be particularly attentive, and if he perceive any spot upon a dog, should rub it with the following mixture:—

Train oil . . .	1 pint
Oil of turpentine	half-a-pint
Ginger, in powder,	a quarter of a pound
Gunpowder, finely powdered . .	half-an-ounce,

To be mixed up cold.

If the disorder should be bad enough to resist *that,* three mild purging-balls, one every other day, should be given, and the dog laid up for a little while afterwards.

The following curious prescription for the cure of the mange is given in Phil. Trans. No. 25, p. 451.

"Mr. Coxe procured an old mongrel cur, all over mangy, of a middle size, and having some hours before fed him plentifully with cheese-parings and milk, he prepared his jugular-vein: then he made a strong ligature on his neck, that the venal blood might be emitted with the greater impetus. After this he took a young lame spaniel, about the same bigness, and prepared his jugular-vein likewise, that the descendant part might receive the mangy dog's blood, and the ascendant discharge his own into the dish. He transfused about fourteen or sixteen ounces of the blood of the *infected* into the veins of the *sound* dog: by this experiment there appeared no alteration in the sound one, but the mangy dog was, in about ten days, or a fortnight's time, perfectly cured; and, possibly, this is the quickest and surest remedy for that disease, either in man or beast."

COUGHS.

Dogs and horses are both subject to coughs, the latter, however, have only an acute and a chronic kind to contend with, but the former are troubled with several kinds; and, as these arise from very different causes, and have very different terminations, the modes of treatment must be consequently various.

One of the most common coughs to which dogs are liable, is that which usually accompanies the distemper. This, in general, is short and dry, producing an effort to bring up a little frothy mucus. This cough usually appears when a dog is just attaining his full growth, at some time between four and twelve months. When, therefore, a young dog coughs much, shivers, is dull, and wastes, though he may eat as usual, it is exceedingly probable

that he is breeding the distemper, and the mode of treatment should be accordingly.

Sometimes a young full-grown dog has a short occasional cough, which may likewise produce nausea, with the accompaniments of staring hair, and disagreeable breath. This kind arises usually from worms, for which we have already given directions.

A cough, arising from a common cold, may be distinguished from any other by its particular shortness and frequency, though resembling the cough of the distemper. If considerable, bleeding will be proper; after which, an emetic of one, two, or three grains of emetic Tartar (according to the size of the dog) may be given; if this be not convenient, a tea-spoonful to a desert-spoonful of common salt will answer the purpose. If productive of

INFLAMED LUNGS,

Which are accompanied by a quick, though laborious, breathing, and a rapid, though oppressed, beating of the heart, the following powders should be administered:—

Take,—Powdered fox-glove 12 grains
Tartar emetic . . . 3 grains
Nitre . . . . . 1 drachm,

Mix and divide into six, nine, or twelve powders, and give one every two or three hours, or form them into balls, and give as above-mentioned.

If the cough should be violent, then

Take,—Tincture of fox-glove . . . 1 drachm
Tartar emetic . 3 grains
Nitre . . . . 1 drachm
Oxymel . . . 2 ounces,

Give from a tea-spoonful to a desert-spoonful every two or three hours.

The asthmatic cough frequently attends old dogs: this usually comes on slowly, and gradually becomes hollow. It is less frequent than the other coughs, and may be readily distinguished.

The cure of the

ASTHMA

is attended with much uncertainty, unless in the very early stages, and when it has been of long standing; though it may be palliated, it is seldom or ever completely cured. In some cases, the irritation of the cough, with the accompanying hectic, emaciates and wears down the animal: in others, the congestion within the chest stops inspiration, and kills by suffocation. A spasmodic affection forms a third termination, in which cases, from the obstruction the blood meets with in its passage through the heart, accumulation takes place in the head, and convulsive fits ensue, which generally prove fatal; sometimes rupture occurs of the heart or other large vessels.

As confinement and over-feeding are very common causes of this complaint, so it is evident that an attention to these particulars is essentially necessary to the cure. It is unfortunate that the accumulation of fat is, in some dogs, so much a disease that even a very small quantity of food will still fatten The food in these cases should be so reduced as to bring down the fat; regular, but not violent, exercise must be allowed, and an airy place to sleep in. The absorption of accumulated fat is materially assisted by regular purgatives once or twice a-week.—

Bleeding now and then gives temporary relief, and, in the first stages, when there is active inflammation, it is exceedingly proper.

A continued course of emetics, given at regular intervals, at twice a-week, proves a most efficacious remedy. In the intermediate days alteratives should be administered with the occasional use of purgatives. The following alterative is recommended :—

Calomel	half-a-grain
Nitre	5 grains
Cream of tartar . . .	10 grains
James's powder .	2 grains

To be well mixed, and given either as a powder or made into a ball with honey; the dose should be repeated every morning, and, in very bad cases, every evening: the quantity to be augmented or diminished according to the size of the dog. On the morning that the emetic is given, the alterative should be omitted, and when the alterative is repeated night and morning, the mouth of the animal should be well washed, that salivation may not unexpectedly come on. When this happens the medicine must be omitted for some days. If the calomel be too disagreeable, the following may be substituted :—

Nitre . .	3 grains
Tartar emetic	one quarter of a grain
Powdered foxglove . .	half-a-grain

To be mixed and given as the other, but not when the emetic is administered

In some cases of long standing, when the cough has been very harsh and distressing, it will be proper to add ten, twenty, or thirty drops of laudanum, or the eighth part of a grain of opium, to each alterative.

Balsamic gums are also efficacious, and may be all tried in obstinate cases: the following is recommended,

Take,—Powdered squills	half-a-grain
Gum ammoniacum, powdered	5 grains
Balsam of Peru	3 grains,

To be mixed with honey, and formed into a ball.

The most common cough to which dogs are liable is that of distemper, and must be treated according to the rules already prescribed for that malady.

The asthmatical cough frequently terminates in

DROPSY

either of the chest or belly, but more commonly of the latter.

The dropsy of the belly is sometimes occasioned by a diseased liver, neglected mange, &c.: it is not an uncommon disease with dogs, and a prodigious quantity of water is sometimes accumulated within the abdomen. This accumulation is sometimes slow and sometimes rapid. In some cases the forerunner is a harsh cough, and in others a ravenous appetite. The breathing becomes quick and laborious, and the dog lies down with difficulty. He drinks much, and though, in the early stages, he may eat heartily, yet, as the disease advances, his appetite fails, and, sooner or later, he becomes suffocated with the pressure which the water makes on the membrane that parts the lungs from the bowels.

Dropsy of the belly may be distinguished

from fat by the particular tumor that the belly forms, which, in dropsy, hangs down, while the back-bone sticks up, and the hips appear prominent through the skin; the hair stares also, and the coat is peculiarly harsh. It may be distinguished from being in pup by the teats, which always enlarge as the belly enlarges in pregnancy; but more particularly it may be distinguished by the undulation of the water in the belly; whereas, in pregnancy, there is no undulation. The surest way, however, of detecting the presence of water is by the touch; if the right hand be laid on one side of the belly, and with the left hand the other side be pressed, an undulating motion will be felt.

Medical treatment in these cases is seldom attended with success, because the complaint itself is seldom primary, but proceeding from some other destructive disorder. When the attacks are apparently not preceded by asthma, diseased liver, or inverted mange, success may be obtained from an evacuation of the water when the recurrence thereof can be prevented: but, in general, ventral dropsy is fatal.

Dogs have been often tapped, and many quarts of fluid, sometimes of a thick, and sometimes of a thin nature, have been drawn off. The operation, when repeated two or three times, has tended to prolong life, but in few instances to preserve it.

The operation of tapping a dog does not differ in any respect from the same process in the human. The evacuation of all the water may be proceeded on at once without fear; the animal will express no uneasiness nor faintness. A bandage, moderately tight, must be applied round the belly, and there retained for several days.

Diuretics have sometimes been found salutary, and fox-glove is deemed the best; but other medicaments of this kind have succeeded when fox-glove has failed. The following doses are recommended:—

Take,—Powdered fox-glove 12 grains
Antimonial powder 15 grains
Nitre . . . 1 drachm,

Mix, and divide into nine, twelve, or fifteen parcels, and give one night and morning;

Or,

Powdered fox-glove . . 9 grains
Powdered squills . . . 12 grains
Cream of tartar . . . 2 drachms.

Mix, and give as above;

Or,

Oxymel of squills . . 1 ounce
Infusion of tobacco (to be made by pouring two ounces of boiling water on one drachm of tobacco) . . . half-an-ounce
Sweet spirit of nitre . . half-an-ounce
Tincture of opium . . half-a-drachm
Infusion of camomile . 2 ounces,

Mix, and give from two tea-spoonfuls to a large table-spoonful, night and morning.

The dropsy of the chest is another common complaint, and may be either slow or rapid When the former, it is generally the result of some other chronic affection; as asthma, or neglected mange, although the latter most frequently produces the ventral dropsy. The

rapid accumulation often arises from active inflammation of the lungs.

This disease may be known by the extreme uneasiness which the dog shows when he lies down, and by his attempts, under such circumstances, to elevate his head. The chest will also appear full and swollen, and the water may be generally heard on motion. The beating of the heart will also clearly characterize the complaint; for the hand, placed on one side of the chest, will be affected with a kind of thrill, very different from the usual sensation produced by the beating of a healthy dog's heart.

This disease is incurable, but if experiments are required, the same remedies proposed for ventral dropsy may be adopted.

CANKER IN THE EAR.

This complaint is evidently produced by heat and over-feeding, and, in order to throw off the superfluity, the dog frequently scratches his ear until a dry red scab appears from extravasated blood. If the complaint be not stopped in this state, it terminates in

ULCERATION,

When the internal part of the ear, instead of being filled with dried blood as before, is always moist with matter. The dog now continually shakes his head from the intolerable itching, and when the root of the ear is pressed, it gives him much pain. When canker has remained long, the ear has become closed, and the hearing lost; sometimes the ulceration penetrates inwards, and becomes fatal to the animal.

This complaint originates from another source besides over-feeding, heat, and confinement, and that is, continual immersion.

It is remarkable, that all dogs who frequent the water, are more particularly disposed to canker than others: any kind of dog may have it, but Newfoundland dogs, poodles, and water-spaniels are most liable to it. Probably the length of hair around their ears not only keeps these parts hot, but also retains the water within, and thus encourages an afflux of humours. Such dogs have been cured of the canker by being kept from the water, which may, therefore, be deemed the primary cause.

Abstinence and purgatives, air and exercise, are the best remedies when canker or ulcerated ears are produced by gross feeding. If there be symptoms of constitutional foulness, which show themselves by a red skin or stinking coat, in addition to exercise, a vegetable diet, with occasional purges and cleansing alteratives (as sulphur, nitre, and antimony,) should be given. In very bad cases, a seton may be properly applied to the neck, and left there till productive of benefit: when the cankered dog is very fat, bleeding is also necessary.

External applications are highly beneficial, and, in some mild cases, (particularly when it is supposed to have been produced or increased by swimming much, or too frequent washing) are all that are necessary. In the early stages, the following wash will be sufficient:—

Sugar of lead . .	half-a-drachm
Rose or rain-water	4 ounces.

Dissolve the sugar of lead in the water, and pour a small tea-spoonful (previously

warmed to a blood heat to prevent surprise) into the ear night and morning, and rub the ear well to promote the entrance of the wash into the cavities.

In more obstinate cases add to the wash,

White vitriol 15 or 20 grains.

And if, instead of rose, or rain-water, a decoction of oak-bark be made use of to form the wash, it will greatly promote the cure.

In some cases, verdigris, mixed with oil, has proved beneficial; also, calomel and oil.

The following remedies are also recommended:—

Shag-tobacco . . 2 ounces.

To be boiled in a quart of water until it becomes a pint, into which, while warm, dip the dog's ears till the water reaches an inch above the affected part. To be repeated three successive days;

Or,

Strong mercurial ointment . . . . . 1 ounce
Lard . . . . . half-an-ounce,

To be mixed together, and well rubbed in every third day, first washing the ears with soft soap and warm water.

In all probability, cankered, or ulcerated ears, owe their origin to

FLEAS AND TICKS,

Which are exceedingly troublesome to these animals. A dog is frequently so annoyed with a flea in his ear that he will sometimes appear as if distracted with the ear-ache; but, though subject to colds, they are not liable to these kinds of aches. Their partiality for gnawing bones preserves their teeth from the canker, and dogs, of course, are not troubled with the tooth-ache.

Though dogs frequently swim, they are still troubled with fleas and ticks; these vermin, in water-dogs particularly, lodge in the ears, and are consequently the promoters of canker and ulcer; they soon recover a temporary drowning, and become more tormenting than before. Though a dog be continually washed with soap and water, and afterwards well brushed, these vermin cannot be completely dislodged, except by means sometimes fatal to the animal if suffered to lick himself.

Common soap and warm water, made into a strong lather, and left on the dog for a day, will remove them for a time. To be repeated when the inconveniency recurs.

Also sweet oil, or four ounces of shag-tobacco, steeped in three quarts of water; to be well rubbed in before a fire.

Also, Scotch snuff, or trooper's ointment, rubbed all over him. In hot weather, and if the dog have much hair, (the case with setters and springers) it will be necessary to repeat the dressing very often

CANKER ON THE OUTSIDE OF THE EAR.

This complaint is very different in appearance from the canker in the ear: it consists of an ill-disposed ulcer, which is usually situated on the lower edge of the flap of one or both ears, dividing it into a kind of slit. This is kept in a continued state of irritation by the shaking of the dog's head. It is remarkable, that smooth-coated dogs (pointers

and hounds) are the only ones, in general, affected with this outer canker, while long haired dogs (Newfoundlands, setters, and water-spaniels) are more subject to internal canker of the ear. Pointers and hounds, who have been *rounded,* by having their ears cropped, are less liable to it than those who have their ears of the natural length. From this circumstance it is common to round them after the disease has appeared; but this frequently fails of curing them, unless the part taken off extends considerably beyond the surface of the ulcerated slit. It is common also to burn out the ulcer either with the actual cautery, or with some caustic substance; but this, likewise, proves an uncertain cure.

Where over-feeding and the want of exercise are supposed to be the chief cause of the complaint, the same rules must be attended to as are mentioned for the internal canker. In other cases, however, an external application will be found sufficient.

Take,—Nitrated quicksilver 2 drachms
Turner's cerate . . 2 drachms
Lard . . . . . 2 ounces,

To be mixed well, and applied once a-day, carefully securing the ear;

Or,

Corrosive sublimate, finely powdered . . . . . 3 grains
Turner's cerate . . . . 1 drachm
Milk of sulphur . . . 1 scruple.

In some cases the following wash has been efficacious:—

Corrosive sublimate 5 grains
Rose water . . . 1½ ounces.

SORE EARS.

A dog's ears may become scabby by being torn in the hedges, or otherwise. In this case, anoint them with oil of bitter almonds, which will be sufficient. If they be sore within, mix with it tar and lard.

SORE FEET.

Sore feet are cured with brine, or salt and vinegar; a handful of salt to a pint of vinegar.

A plaster of black pitch is the best cure for a thorn, in man, horse, or dog: this has been successful when other applications have failed. If the part be much inflamed, a common poultice bound over the plaster will assist the cure.

Some have recommended to bathe the sore feet with greasy pot-liquor, milk, or butter-milk.

CANKER IN THE LIPS.

Dissolve a lump of alum in some water, and with this wash rub the affected part two or three times a-day.

SWELLING IN THE THROAT.

A swelling of the glands of the throat, apparently of the thyroid, is a very common complaint among dogs. Pugs, barbets, and French pointers are peculiarly liable to it. Other dogs, however, terriers, spaniels, &c. have it; but it is not common in these, and in the larger kinds it is scarcely ever seen. The swelling comes on generally while very young, and continues to enlarge to a certain size; after which, it usually remains stationary, seldom increasing to such a degree as to prove fatal. It is, notwithstanding, troublesome, and, in some measure, injurious, from

the pressure it occasions on the surrounding parts. The treatment is not difficult, nor usually unsuccessful when early adopted.

Take,—Burnt sponge 1 drachm
Nitre . . . half-a-drachm,

Mix into six, nine, or twelve balls, (according to size) and give one every day;

Or,

Mild mercurial ointment half-an-ounce
Blistering ointment . . half-an-ounce,

Mix, and rub the swelling once a-day, with a portion equal to a hazle-nut, or walnut, according to the size of the dog, first clipping away the hair that it may penetrate better, and, after the application, wrapping up the neck with a bandage, to prevent it from being rubbed off. During this application, the mouth should be continually examined to guard against the attack of salivation.

The following remedies are probably more safe:—

(Tried.)

Fresh mutton suet . . 2 pounds
Gum elemi . . . . 1 pound
Common turpentine . 10 ounces.

The gum and suet to be melted and strained, and the turpentine to be added while hot. Anoint the affected part with it.

Or, wash the swelling with salt and vinegar mixed, but not too strong, and then anoint it with oil of camomile.

INFLAMMATIONS.

The inflamed bladder, though not a common complaint, was very prevalent in the year 1810. The bladder in every instance was much inflamed, and in many cases which occurred it was exclusively so. The inflammation of the bladder shews itself by great restlessness and panting; in some instances, there is a total stoppage of urine, when the belly is hot, swelled, and very tender; and, in others, it is evacuated by frequent drops, tinged with blood.

The dog so affected should be liberally bled, and have opening medicines. James's powder, or small repeated doses of tartar emetic, should be administered. Clysters and the warm bath are also necessary; when the latter is not convenient, warm fomentations may answer the purpose.

The intestines of dogs are very irritable, and extremely subject to inflammations, which are of various kinds, according to their various causes. Distemper occasions a species of inflammation. Among the various inflammatory affections, four kinds are peculiarly common. The first is brought on by

RHEUMATISM.

Dogs are very liable to this complaint, and it is always accompanied with more or less inflammation of the bowels. In many cases, the bowels are the only seat of rheumatism, and it then produces a peculiar inflammation. In this case, the animal is generally seized with a total loss of the use of his hind legs; his back, about the loins, appears tender and painful to the touch, he screams on being moved, and is often inclined to costiveness, but always to pain.

The spring, on account of the easterly, winds, produces more instances of this disease than any other time of the year. The treatment should be as follows: the animal should be placed in warm water, and kept there for a quarter of an hour, the affected

parts being frequently rubbed during the time; when taken out he should be wiped dry and kept warm. The following should be previously administered:—

Tincture of opium . .	20 drops
Æther	30 drops
Castor-oil	1 ounce.

This is proper for a middle sized dog, but it must be increased or diminished according to size. If this should not operate, try a clyster, and if that fail, give the following:—

Calomel . . .	4 grains
Powdered opium	a quarter of a grain
Oil of peppermint	1 drop
Aloes	1 drachm,

Make into a ball, and increase or diminish according to size. If necessary, repeat every four hours till the bowels are perfectly open, in which state they must be moderately kept for three or four days.

The affected parts should also be rubbed two or three times a day with the following:

Oil of turpentine . .	2 ounces
Spirit of hartshorn . .	2 ounces
Laudanum	2 drachms
Sweet oil	2 ounces,

The warm bath should be repeated at intervals of one or two days, according to the quickness or slowness of the amendment. Moderate feeding should be allowed; sometimes the animal refuses food, at other times he is willing to eat, and often voraciously.

Electricity is sometimes efficacious, when the paralysis, occasioned by rheumatism, continues to deprive the limbs of their mobility. In other cases, mercurial frictions have a good effect, and on others blisters along the spine. When the hinder limbs only are paralytic, a very large pitch plaster, applied over the whole loins, reaching to the tail and covering the upper parts of the thighs, should be worn for six or seven weeks.

The second kind of inflammatory affections proceeds from costiveness; dogs will bear costiveness for many days before inflammation comes on, but when it has commenced, it is with difficulty removed. This kind is known by the gradual manner in which it attacks, and by its not being at first accompanied with any very active symptoms. The dog appears dull and dislikes to move, his belly is also hot and sore. The costiveness is sometimes complete, and at others a few drops of fœces are strained out, by which an ordinary observer may think the dog is purged instead of being bound.

Clysters should be constantly applied; medicines are also necessary. A large dose of castor-oil may be at first tried, which, if not effective, must give place to stronger means: viz.

Calomel . . .	6 grains
Aloes	1½ drachm,

To be diminished or increased according to size. If the stomach reject the first dose, add half-a-quarter of a grain of opium to the second, or a dose of Epsom salts. To be repeated every four hours, but with decreased strength.

The third kind of inflammation comes on spontaneously, or is the effect of cold. The dog betrays great heat, thirst, panting, and restlessness, even from the first attack. The stomach is incessantly sick, throws up, and

all food is rejected. The belly is extremely hot, the eyes red, and the mouth and nose first hot and then cold. The animal frequently lies on his stomach, and expresses much distress.

The treatment should be early and liberal bleeding, from three to six ounces may be taken away according to size and strength. A laxative of castor-oil should be administered; but, unless the bowels be obstinately bound, no stronger medicine should be given, as it would heighten the inflammatory symptoms. The dog should be bathed in water every three or four hours. If this be found troublesome, fomentations may be substituted. Clysters of castor-oil, with mutton-broth, should be frequently applied, till successful. When the case is desperate, the belly may be rubbed with oil of turpentine between the bathings, or a mustard poultice. No food should be given or cold water, but the dog may be drenched with mutton-broth. In case the vomiting be violent, with every dose of castor-oil, and with every drench of mutton-broth, give from ten to twenty drops of laudanum.

The fourth kind is a bilious inflammation of the bowels; dogs living indiscriminately on animal and vegetable matters, are subject to a disordered state of the liver, and to a vitiated secretion of its biliary fluid. This complaint originates primarily from some affection of the liver, which alters its secreting qualities, and makes it, instead of engendering healthy bile, secrete one of a black noxious kind, which, as soon as it passes into the bowels, irritates and inflames them most highly. This species of intestinal inflammation, may be distinguished from the other kinds, by the early vomiting of a black or yellow fœtid matter, and likewise by the bilious gripings and purgings.

When judiciously managed, this is not a very untractable complaint. If the evacuations be frequent and profuse, nothing stronger than castor-oil should be given, which is absolutely necessary let them be ever so considerable. When very trifling, a mild mercurial aperient should be administered: viz.

Calomel . . .	10 grains
Aloes	2 drachms,

Make into four, six, or eight balls, according to size, and give one every four or five hours till successful. Clysters of mutton-broth may be given, and some should be forced down the throat if the sickness be very obstinate. If the belly be hot and stretched, the warm bath or fomentations will be necessary.

When the evacuations are bloody, no laxatives should be used; but the following administered:—

Powdered colombo . .	1 drachm
Powdered chalk . . .	1 drachm
Powdered gum-arabic .	1 drachm
Powdered opium	1 grain,

Mix and divide into three, five, or seven balls, according to the size of the dog, and give one every three or four hours. If the case be desperate, give also a starch clyster.

Should this complaint arise from

POISONS,

The treatment should be very different. Dogs are frequently poisoned by design or accident, generally with arsenic, corrosive

sublimate, white-lead, or crow-fig. When through arsenic or corrosive sublimate, the effects are incessant vomiting, unquenchable thirst, agitation and pain. The bowels are soon affected, the evacuations become bloody, and debility ensues.

Dogs frequently lick paint, and when there is lead in it injure themselves; this produces stupidity, dislike to food, and irregular pains in the bowels, sudden starts, and generally costiveness.

The vegetable called crow-fig *(nux vomica)* is very destructive, and, in a few minutes, deprives the animal of all energy. It is, however, irregular in its action, some dogs are hardly affected by it, while others are destroyed by a slight dose. A strong infusion of laurel is equally poisonous, and even more certain in its deleterious effects.

In cases of poison, remedies must be administered with speed, in order to be efficacious; when suspected to be injured by arsenic, or mercurial poison, the following emetic should be given, notwithstanding the stomach be already agitated with vomiting:

Ipecacuanha . . .	2 scruples
Liver of sulphur . .	2 scruples,

To be increased or diminished according to circumstances. If the vomiting has been very long and violent, give only the liver of sulphur, dissolved in boiled milk and repeat it every hour or two; give some also as a clyster in milk. When the stomach seems a little appeased give laudanum and castor-oil.

When injured by licking paint, give active purgations of calomel, in doses from four to eight grains, with a moderate proportion of aloes, and repeat it every six or eight hours till successful. Then administer mild doses of castor-oil, and feed very lightly

Any thing that will cause instantaneous vomiting may have the desired effect in every case. Great benefit has been derived from two or three grains of vitriol, or common salt, forced down the throat. After vomiting, a table-spoonful of oil of English pitch may be given in the morning fasting, as an aperient.

In the month of August, 1809, a very fine setter was poisoned by crow-fig, which was given to him by some cruel wretch, and every remedy was employed in vain to save his life; the poor animal expired in the greatest agony. Some short time had elapsed before it was discovered that the dog had taken poison. In the summer of 1810, a yard-dog, in the same neighbourhood, was served in a similar manner, and every effort for his preservation proved alike ineffectual. Hence it appears, that unless the poison of crow-fig be got rid of almost the minute it is taken, the dog must inevitably perish. If the poison has been given whole, that is, in a *button,* as it is called, he may get rid of it by speedy emetics; but if it has been grated, or powdered, and five minutes elapse, his recovery is almost impossible.

VENOMOUS BITES.

Dogs are more subject than horses to the bites of venomous creatures. Many receipts have been prescribed for the bite of a viper &c. but their success is precarious. Rubbing the affected part with sweet-oil is a certain but simple remedy. When a dog has been injured by a viper, slow-worm, &c. the bitten part will immediately swell, and oil (olive-

oil is the best) should be instantly applied. If a considerable time elapse before the sportsman can procure oil, and the animal be materially affected, pour a spoonful of oil down his throat, and hold the bitten part over a charcoal-fire, while the oil is rubbed in. Very seldom, however, any thing more will be necessary than a little common sweet-oil, rubbed well on the wound. Rubbing with olive-oil over a charcoal-fire will cure the master as well as the dog.

Mr. Beckford, on this subject, observes:—

"Hounds sometimes are bitten by vipers—sweet-oil has been long esteemed as a certain antidote; some should be applied to the part and some taken inwardly; though a friend of mine informs me that the common cheese rennet, externally applied, is a more efficacious remedy than oil for the bite of a viper."

FRACTURES, WOUNDS, &c.

Though dogs' limbs are very liable to be fractured, yet the irritability of the constitution is so much less in these animals than in horses, that they suffer comparatively but little on these occasions, and the parts soon reinstate themselves, even without assistance, though in such cases the limb in general remains crooked. They meet with accidents also in a different way from horses, the latter being liable to falls, &c. but dogs to their being run over by coaches, carts, &c. or being kicked or trod upon. The thigh is a very common subject of fracture, and though it appears a most serious bone to break, yet it is one that, with a little assistance, commonly unites straight, and forms a good limb. When an accident has happened to the thigh, in case the fracture has injured the fleshy parts also, so as to produce heat and inflammation, foment with vinegar and water till the swelling is reduced. This being effected, apply a plaster of pitch, or other adhesive matter, spread on moderately firm leather, sufficiently large to cover the outside of the thigh, and to double a little over the inside of it also: then fasten a long board upon this, which should reach from the toes, to an inch or two, which will keep the limb steady. This lath must be kept in its situation, by a long bandage, carefully wound round the limb, and secured by cord.

Fractures of the shoulder should be treated in a similar manner.

Much care, however, is necessary in fractures of the fore and hind-legs, in order that the limbs may be united straight. Sometimes there is little or no inflammation at first, but as soon as the swelling will admit, apply an adhesive plaster neatly and firmly round the part; then fill up the inequalities with tow or lint, so that the limb may appear of one size throughout; otherwise, the points of the joints will be irritated, and made sore by the laths. This done, apply two, three, or four laths before, behind, and on each side of the limb, and secure them by a bandage.

In all fractures, great care should be taken not to tighten the broken limbs, by either the plaster or bandage, as mortification will then ensue. Fractures of the fore-legs require supporters a longer time than fractures of the hinder-legs, otherwise, those legs are apt to become gradually crooked, after the apparatus is removed.

In cases of compound-fracture, that is, where there is an open wound which penetrates to the divided bones, the same means

must be adopted as the human frame requires: irritating pointed portions must be sawed off; the loose ones should be removed, and every means must be used to close the wound as soon as possible, during which, the bones must be kept in contact with each other, and supported by soft bandages until the wound begins to heal, and will admit of tighter bandages and boards.

A compound fracture, as well as a simple one, when neglected, frequently becomes united of itself; but this union is imperfect, for, instead of the callus interposed between the divided ends becoming bony, it proves only gristly, and the fractured limb never acquires firmness or strength; indeed, when examined, an obscure motion may be felt, a sufficient proof that the joint is imperfect and deficient in strength.

One or two experiments may be made to remedy this evil, though humanity may be loth to torture the poor animal. Either the skin opposite the fracture should be opened, and laying bare the bone. the soft portion interposed should be removed with a fine saw, treating the case afterwards as a compound fracture: or, which is less painful, a seton should be inserted exactly through the gristly part, and kept in about ten days or a fortnight: after this time it may be removed, the wound closed, and the part treated as a simple fracture.

Dogs are liable to be wounded in various ways, and these wounds are not, in general, much attended to, from an opinion that the animal's tongue is the best dressing. Nature is, in many instances, a sure physician, and there is no doubt but the animal's licking a sore is of great service; but, in some cases, nature may be assisted by art, and in others, the tongue may be an injurious application. If a dog be inclined to foulness, a wound licked by a foul tongue will become mangy, and the soreness will consequently spread.

In all extensive wounds, a stitch or two should be made with a large needle and thread, which will considerably reduce the laceration; but as such stiches soon ulcerate in a dog, the edges should be still further secured by slips of sticking-plaster. A recent wound should be cleansed from the dirt, and then covered up; when it begins to suppurate, dress with any mild ointment. Nature instructs the dog to lick away the dirt.

In thorn wounds, or others made with splinters, carefully examine that nothing is left within them: otherwise, no attempts to produce healing can prove successful.

The most common wounds in dogs arise from the bites of others. Under such circumstances, should any suspicion arise that the dog was mad by whom the wounded one was bitten, first carefully wash the wound with warm water, and, immediately after, wash the dog all over. The bitten part itself should then be cauterized, either with the actual cautery, or with lunar caustic. Should the wound be an extensive one, or much lacerated, the lunar caustic will prove the safest application, and by far the most convenient.

The wounds arising from common bites, in general, soon heal of themselves: if, however, they are very extensive, wash them with Friar's balsam to prevent their becoming gangrenous. The parts may be rubbed with Friar's balsam, oil of organum, and soap lineament.

When a dog is wounded with shot, the following remedies will be found efficacious:—

Oil of turpentine . 2 ounces
Oil of camomile . 2 ounces
Aqua vitæ . . . 2 ounces,

To be mixed well together with half-a-pint of linseed oil.

Or,

Fresh goose-grease, melted and strained through a sieve, and spirit of wine and turpentine, of each an equal quantity, melted and strained again clear and fine; the part to be well anointed.

When wounded with stakes, or when a violent effusion of blood is to be stopped, the hair should be cut off about the wound, and the part washed with warm vinegar, and then rubbed gently with the following mixture:—

Oil of spike . . . 2 ounces
Oil of swallows . 2 ounces,

Let the animal be muzzled when it is applied.

For the cure of a flesh wound, cut off the hair from the part as close as possible, then take some fresh butter and burn it in a pan: while the butter is hot, dip a roll of lint into it, and place it in the hole of the wound. This should be repeated twice a-day, and the part washed with warm milk and water each time.

Fistulous wounds in glandular parts often prove very obstinate. In such cases, means must be taken to get at the bottom of the sinus, and to raise a more promising inflammation therein. This may be either done by injecting something stimulant in it, as a vitriolic wash, or by passing a seton through it. Some fistulous wounds, such as those in the feet, and about the joints, will frequently not heal, because, either the bones, or the capsular ligaments, are diseased. In these cases, the wound generally requires to be laid open to the bottom, and to be stimulated with oil of turpentine, or with tincture of Spanish flies, daily, till a healing process shows itself.

SORE FEET

Are generally cured with brine, or salt and vinegar, a handful of salt to a pint of vinegar. Stale urine is also used for this purpose. It is recommended by Mr. Blaine to bathe them with greasy pot-liquor, milk, or butter-milk, and afterwards to defend them from stones and dirt, by wrapping them up. Styptic tincture, however, is preferable in every respect; this will even extract thorns, and enable the dog to hunt the next morning. Alum-water is a good thing to wash a dog's feet with, on account of its hardening them.

When the feet become sore from any diseased affection of the claws, an ointment, composed of nitrated quicksilver and Turner's cerate will be proper. This is a peculiar disease, in which one of the toes will appear very highly inflamed, swollen, and somewhat ulcerated around the claw. In such a case, the dog employs himself in continually licking it, and which, instead of doing good, as is supposed, always makes it worse. This complaint is commonly mistaken for some accidental injury, and the owner is surprised to find that neither the dog's licking, nor his own attempts to make the toe sound, succeed. The fact is, that this is simply a mangy affection, and may be cured by the mildest of the remedies pro-

posed for that complaint. The foot must be sewed up in leather to prevent the dog getting at it, but care must be taken not to bind it up too tight.

Puppies have frequently dew-claws, sometimes they are double: these are small ones, situated on the inner-side, one to each foot, distinct from and much above the claws of the toes. They are frequently unattached, except by a small portion of skin; but whether attached or not, that is, whether there is any bony attachment or not, it is always prudent to cut them off while they are very young: otherwise, they become troublesome as the dog grows up; for the nail attached to the end of it frequently turns in, and wounds the flesh, or, by its hook-like shape, it catches into every thing the dog treads on. The horny claws are also subject, when dogs have not sufficient exercise, to become preternaturally long, and by turning in to wound the toe and lame the dog. The claws, when too long, are often cut off with scissars; but unless the scissars used be very short and strong, they will be apt to split the claws. It is better, therefore, to saw them off with a very fine and hard cockspur saw, and then to file them smooth.

DISEASES OF THE EYE.

The eyes of dogs are subject to several kinds of disease; the most common of which is an ulceration of the cornea, or transparent part of the globe of the eyes. This affection, which proceeds from distemper, usually commences by a blueness, or sometimes by a dimness of the transparent portion, in the centre of which a speck may be frequently seen, which gradually accumulates to a small abscess, which, when it breaks, leaves an ulcer, that generally remains stationary till the distemper amends: sometimes it extends, and sometimes forms an excrescence which protrudes. Though the eye in this disease becomes more deranged than in any other, yet if the animal be cured of the distemper, (for which the best remedies are already given) the eye gradually clears itself; and, at length, bears no vestige of disease. Sometimes, for the sake of vision, when the eye is very much irritated and inflamed, a seton in the neck will be necessary; also, fomentations of poppy-heads; or the use of goulard-washes in the beginning, and vitriolic ones as the disease advances.

Sometimes the eyes become suddenly weak, water much, and if viewed in the light, look red at the bottom, and also within the eyelids. There are always marks of pain and impatience whenever exposed to a strong light. The animal should be immediately bled; then a seton should be inserted in the neck, and a purgative given every third day. For the first few days adopt a poppy-head fomentation, and frequently use the following wash:—

Sugar of lead	half-a-drachm
Rose water .	6 ounces,

When the inflammation is somewhat moderated, add to this wash,

White vitriol . .	10 grains.

In violent injuries of the eyes, through blows, punctures of thorns, or scratches from cats, the above wash may be used till the inflammation has abated. Should a bluish-dimness be afterwards left over the eyes, a

small pinch of a powder may be sprinkled into the eye once or twice a-day, composed of

Sugar of lead . . 1 scruple
Calomel . . . ½ drachm.

Cataract is another disease to which the eyes of dogs are liable. In the old they are very common through the decay of nature; and young dogs are liable to it, it being sometimes produced by an injury. When this disease attacks an aged dog, both eyes are generally affected; but in a young dog it is usually confined to one. Let white vitriol, the size of a pea, be put into half-a-pint of spring water, and remain in it for a day; then soak a bit of fine linen in the water, and bathe the affected eye or eyes with it; immediately after, bathe them with pure spring water. This should be done twice a-day.

SPRAINS.

For sprains in the shoulder, or any part except the legs and feet, the following will be found an efficacious wash:—

Spirit of wine . . 2 ounces
Turpentine . . . 1 ounce,

To be mixed well together in a strong potion of Vegeto's mineral water, and to be applied before the fire.

For sprains in the legs and feet,

Take,—Spirit of wine 1½ pint
Camphor . . 3 ounces
Laudanum . 60 drops,

To be well mixed, and carefully rubbed in eight or ten times a-day before a fire.

SCALDS.

If a dog by accident receive a scald, his own tongue will prove the most salutary wash, and by frequently licking himself he will speedily remove the irritation. It often happens, however, that the scalded part will become bald; in order, therefore, to bring the hair again, calcine a piece of leather, and mix it with lard, and rub the affected part with this ointment. Nothing better can be used to make hair grow in general, though there are many receipts for the purpose, but this, which is the most simple, is undoubtedly the best.

Dogs are very subject to

PILES,

But the symptoms by which the complaint shows itself are very little known as such. Piles are brought on by confinement, heat, and heating food, and show themselves by a red sore protruded anus, which the dog considerably aggravates by dragging it on the ground. They are also produced by costiveness.

The habitual piles will be greatly relieved by the use of the following ointment:—

Sugar of lead 6 grains
Tar . . . half-a-drachm
Elder ointment
or lard . . 3 drachms

Mix, and anoint the affected part with it two or three times a-day.

A dog accustomed to this complaint should be fed moderately on cooling food, and be sufficiently exercised. If the disposition to it be considerable, give daily one of the following powders:—

Powdered nitre half-a-drachm
Milk of sulphur 3 drachms,

To be divided into nine, twelve, or fifteen doses, according to size.

Dogs are also accustomed to the

PALSY,

And this cause of the motive power of the limbs proceeds from various causes. Partial, or universal, palsy is very usual in hydrophobia. The loins and hinder-parts are generally those which are the most affected. Sometimes the throat principally suffers, and now and then it is universal. In distemper it is very common for the loins and hinder-parts to become palsied; sometimes it affects the head also, and the fore extremities. In a few instances it continues during life. In very bad cases all the muscles of the body become affected with a spasmodic affection, which often ends in complete palsy. Accidents may also occasion the palsy, but the most frequent cause is rheumatism, on which we have already treated, and for which we have given the most efficacious remedies.

It is evident, that the direct treatment for the palsy must vary according to the cause producing the paralytic affection. General warmth, with stimulating applications to the immediate parts, forms the outline of the treatment proper for most cases. Sometimes the cold-bath proves the most efficacious; but still, during the intervening time, the body must be kept warm. As a general remedy, an extensive pitch-plaster is a very good one. Blisters and electricity are sometimes useful. When proceeding from accidental injuries, a seton opposite the injured part will be necessary.

SETONS

Are artificial drains to the constitution, either to lower it generally, or to draw a deposit or secretion of matter from one part to another. Country farriers and grooms make setons by piercing the skin through with a red hot iron, but this is barbarous, and leaves a bad scar: indeed, common farriers often betray consummate ignorance. *(See page 242.)* The proper mode of performing this operation is by means of a seton-needle, which is a well-known instrument, not unlike a packing-needle, but three times as broad. This, accompanied with a skain of thread, or a piece of tape, about six or eight inches long, is passed through about two inches of the skin, commonly of the neck, though any other part may, with equal propriety, have a seton placed in it if necessary. The needle is then removed, and the thread or tape suffered to remain, either tied end to end, or a secure knot made at each end to prevent its coming out

CRAMP.

This is a familiar term among sportsmen for

SPASM,

Which is an irregular motion in the muscular fibre, and is, consequently, partial or general. Hence arises

ST. VITUS's DANCE,

Which only now and then occurs, and which generally remains after the distemper. Other causes, however, will produce a similar appearance.

We have already treated on spasmodic affections in our remarks on the rheumatism, &c. The spasm in the bowels frequently produces

VERTIGO, OR A GIDDINESS IN THE HEAD,

For which bleeding will be sufficient.

The best anti-spasmodics are the warm-bath, with warm covering afterwards. In some cases, extraordinary warmth is useful, with volatile embrocations externally applied. The following may be given internally:—

Æther	. .	20 to 60 drops
Laudanum	.	20 to 60 drops
Camphor	.	3 to 6 grains,

To be well mixed together, and given in a table-spoonful of ale, or wine and water, according to the urgency of the symptoms. No fear need be apprehended from an overdose of laudanum, for a dog will bear five times a greater quantity of opium than a human being. Indeed, a few drops of laudanum, even to a human being, is more dangerous than the proper number which the constitution requires. When spasm affects the bowels, much benefit sometimes arises from clysters with laudanum in them; but in such cases, double the quantity of the opiate, which is administered by the mouth, must be used.

As dogs are known to be liable to

THE STONE,

Though by no means a common complaint, we may naturally conclude that they may also have

THE GRAVEL.

It is not always easy to detect this complaint, though it may be sufficiently discovered.

From ten to twenty drops of oil of turpentine, or from twenty to forty drops of the spirits of nitre, twice a-day, with from ten to twenty drops of laudanum added to either in case of much pain, will form the best means of relief.

The other disorders to which dogs are liable may, as they generally proceed from some of the causes already mentioned, be easily removed by a discriminate application of either astringents or aperients.

PUPPING.

Many bitches lose their lives in the act of pupping, and many of their whelps also perish with them. Whenever pupping is protracted considerably, the puppies surely die; and, in those cases where the young are dead before birth, from the effect of accident, they are the sure occasions of a protracted labour. Dead puppies come away piece-meal, sometimes many days after the natural time, and occasion a fœtid discharge for many days afterwards.

A bitch should never be allowed to suckle more puppies than her constitutional powers are equal to. Though she may go on very well, perhaps, for one, two, or even three weeks, yet sudden convulsions may ensue, (as already intimated) which, rapidly following each other, may carry her off. Some bitches can bring up five or six puppies with more ease than others can rear three. Strong bitches (that have before brought up young) may rear four or five; but delicate ones are sometimes sufficiently burthened with three, and sometimes can bear only two.

If a bitch, while suckling, have a fit, the puppies should be removed; one or two

may be given to her for half an hour, morning and evening; or, if she have much milk, one may be left with her entirely. The following mixture is necessary:—

Æther	1 drachm
Laudanum . . .	1 drachm
Strong ale . . .	2 ounces,

Mix well together, and give a desert, or two table-spoonfuls, (according to the size) repeating the dose every three or four hours. Nutritious food should be also given to her, and in sufficient quantities.

When you wish to dry up a bitch's milk, (which is often necessary) bathe the teats well several times with warm vinegar, or warm vinegar and brandy.

Puppies are very liable to

RICKETS,

Particularly pugs, and small terriers. There is a breed of large terriers in whom this deformity is hereditary: these are called wry-legged, and are much used for hunting rabbits, &c. The affection attacks all the joints of the extremities, which it enlarges, and also makes the limbs crooked. Cleanliness, good air, free exercise, and wholesome food, will commonly prevent it, and will also amend it in those already affected.

WORMING.

The best time for worming puppies is when they are entirely taken from their mother. Worming will not injure their growth, or otherwise spoil them, as some imagine; and, indeed, it has this strong reason to recommend it: if a wormed dog become mad, he is prevented from doing mischief by biting; for, however vicious his inclination may be, he becomes so swelled about the tongue and mouth that he cannot get his jaws together.

The operation of worming is by no means difficult. The skin which covers the worm (situated under the tongue) should be cut with a lancet; a large needle or awl must then be introduced under the worm to raise it up: on being raised, it should be firmly held, and drawn out gently. Very little force is necessary, and care must be taken that the worm does not break in the operation, as the animal must thereby be put to additional pain.

We are told, by Dr. Blaine, that there is no such thing as a worm under the dog's tongue. The following are his observations on this subject:—

"*Worming.*—I could hardly choose a better opportunity than the present to show how lamentably ignorant the generality of persons, even of those who are otherwise well informed, are, relative to the animal economy of this useful quadruped. Many of those, likewise, who pride themselves on their knowledge of dogs, actually suppose that a *worm* exists under the tongue of every one of them, the removal of which will prevent them from going mad. Those who do not carry the opinion to this length, are still convinced that, provided the dog who has had this imaginary worm removed should become rabid at any future time, the removal will effectually prevent him from biting.

"The mouth, in some mad or rabid dogs, certainly becomes so swollen, or rather so paralytic, that it is with difficulty the jaws can be closed: but this may happen to an *unwormed,* or to a *wormed* dog, equally.

"Worming is also practised to prevent *gnawing*, which young dogs are very prone to, first, from a playful habit, and next, to favor the removal of the present, and growth of the future teeth. In infants, also, the same habit is observed. But worming only prevents gnawing by making the mouth sore; for, as soon as the wounded part is well, the dog recurs to the practice again.

"Worming is a custom then founded on ignorance, and should not be perpetuated by any written directions how to perform it."

This writer, who appears in many instances to have been "lamentably *wise*," acknowledges, however, that there is a something under a dog's tongue, for he observes, in another place,—"Anatomists all know that most pendulous organs, partially attached to others, have a doubling of the skin to secure them in their situation, anatomically termed a pœnum, or sort of bridle. It is this duplicature of skin under a child's tongue that is cut by nurses to give it more liberty. This pœnum immediately appears on opening a dog's mouth, and lifting up his tongue; extending from almost the point to the root of it, like a prominent portion of skin, that evidently was intended to confine the tongue from passing backwards into the throat, which otherwise it might readily do, under convulsions. The skin is doubled, and has besides an interposed elastic ligamentous substance to strengthen it. It is common in the operation called *worming*, to strip off this pœnum from the tongue; the violence made use of in doing which, puts it on the stretch, so that, when removed from the mouth, its recoil is adduced as a proof that it is alive, and proves it a worm in the opinion of credulity.

"That this is no worm, and that there is no such thing as a worm in the mouth, any person may easily convince himself of by examination; and having convinced himself of this, it must be evident that a simple removal of a portion of skin, whose use is so apparent, can have no effect in preventing madness."

Notwithstanding the plausibility of these arguments, Dr. Rees rejected them in his "Cyclopedia," and, adhering to the *vulgar error*, has detailed the mode of extracting this *imaginary* worm. Every dog, it seems, has this worm, or "sort of bridle;" but very few children are born tongue-tied; and, when they are, the operation is performed by a surgeon, and not a nurse. When a dog is wormed, he does not recur to the act of gnawing; and, therefore, the use of "this duplicature of skin" is not apparent. The same author acknowledges that "worms are particularly fatal to puppies;" they are also, exceedingly troubled with ticks; and, surely Providence, which ordains such extraordinary animation *within* and *without*, can allot those worms whatever home that Infinite Wisdom thinks fit!

CONDITION.

This term, as applied to dogs, is correspondent with the same term as used among horses, and is intended to characterize a healthy appearance, united with a capability, from full wind and perfect vigour, to go through all the exercises required of them.

It is, therefore, evident, that condition is of material consequence to sportsmen. A horse must be previously trained for racing; dogs must also be trained for the chase or the gun. It is well known, that pointers,

setters, and spaniels, if, according to sporting phraseology, *foul* in their coats, never have their scent in perfection. Some sportsmen (and the practice is proper) regularly dress their dogs with sulphur, before the hunting season, even though no breaking-out appears. The following method of making a dog fine in his coat has been recommended.

Take,—Native sulphur 1 pound
Train-oil . 1 quart
Oil of turpentine 1 pint
Soap . . . half-a-pound,

Rub well with this four or five times in the course of the summer.

Or,

Brush him well with chalk, and give him two large spoonfuls of syrup of buckthorn twice a-week for a fortnight.

For dressing puppies,

Take,—Quicksilver . . three-quarters of an ounce
Spirits of turpentine half-a-pint
Hogs' lard . . 4 ounces
Soft soap . . . 1 pound
Common turpentine (in which the quicksilver must be killed) . . . . 3 ounces.

SUMMARY OF THE GAME LAWS, AND LAWS RELATING TO DOGS.

THE QUALIFICATION.

In the reign of Richard II. the *qualification* was forty shillings per annum; James I. advanced it to ten pounds. Though these statutes have never been formally repealed, yet they have been rendered a dead letter by the following act of 22 and 23 Charles, c. 25.

"Any person or persons, not having lands of inheritance, or freehold property, in his own or his wife's right, of the clear annual value of one hundred pounds; or leasehold property for life, or a term of ninety-nine years, or longer, of the clear yearly value of one hundred and fifty pounds, (that is, assessed to that amount, and clear of mortgage or other incumbrance,) are declared ineligible *to have or keep for themselves, or any other person,* guns, bows, greyhounds, setting-dogs, ferrets, lurchers, nets, hare-pipes,

gins, snares, or other engines for the taking or killing rabbits, hares, pheasants, partridges, or other game."

This statute is merely prohibitory, and does not subject the party to any pecuniary penalty, but merely authorizes the seizure of the dogs and engines. But, by the act of the 5th of Anne, c. 14, any person guilty of an infraction of this law is liable to a penalty of five pounds, one half of which sum is to be given to the informer, and the other half to the poor of the parish, to be levied by distress; the offender may be sent to the house of correction for three months for the first offence, and for every subsequent offence four months. The qualifications of Charles II. and the penalty of Anne, are the modern practice, and may be summed up in a few words, thus:—Pursuing, or killing game, without the recited qualifications, subjects the offender to a penalty of five pounds (supposing him to have a certificate; if he has no certificate, he is liable to an additional penalty of twenty pounds.) And by 9 Anne, c. 25, s. 3, a disqualified person is liable to the same penalty for having game in his possession, unless it is ticketed by a qualified person.

EXCEPTIONS TO THE GENERAL RULE OF QUALIFICATION.

By the same statute of Charles, the following are qualified from the circumstances of their birth, though they may possess no property whatever, viz. the son and heir-apparent of an esquire, or other persons of higher degree. Esquires, according to law, are the four esquires of the king's body; the younger sons of noblemen and their male heirs for ever; the eldest sons of baronets, knights of the Bath, and knights bachelors, and their heirs male in the right line. Persons of higher degree than esquires, are doctors in the three learned professions, serjeants at law, and colonels. It has been asserted, that subaltern officers, whose names appear in their commissions, with an *esquire* attached to them, are therefore esquires strictly speaking; though they appear to be esquires by courtesy only, not in the legal sense of the word. A justice is an esquire as long only as he continues in the commission of the peace. Neither esquires, however, nor any of these persons of higher degree, are qualified to kill game, unless they have the requisite property, whilst their eldest sons are qualified, though possessing no estate whatever! 1 *Term. Rep.* 44.

A vicar, in respect of his church, has not an estate of inheritance in the eye of the law, but only for his life; and, therefore, must possess one hundred and fifty pounds per annum. *Caldecot's Cases,* 188.

The owners and keepers of forests, parks, chases, or warrens, being stocked with deer or conies for their necessary use, are qualified without the requisite estate, merely as far as relates to their forests, parks, &c.

The lord of any manor, or royalty, is qualified in a legal sense, though his property may be insufficient for that purpose. In the same way a gamekeeper may be said to be qualified, as he has a legal right to shoot on the manor for which he is deputed.

Goods distrained for penalties under the game-laws are not repleviable.

Any justice of the peace, or lord or lady of a manor, may take away any hare, or other game, as well as any dogs, found in the possession of an unqualified person.

Gamekeepers, or any other persons, may, by warrant of a justice of peace, on proper information, search the houses or other places of unqualified persons, and seize and keep for the use of the lord or lady of the manor, or destroy any dogs, nets, engines, &c. as before expressed.

The 1st of James I. c. 27, inflicts a penalty of twenty shillings (to the poor), or three months' imprisonment, as well as two sureties in twenty pounds each, for shooting or destroying game. And the possession of game, by William and Mary, c. 23, s. 3, subjects an unqualified possessor to an imprisonment of not more than one month, nor less than ten days, and to be whipped and kept to hard labour. This act also specifies, that if any *inferior tradesman* (whatever property he may possess), *apprentice,* or *other dissolute* person, shall hunt, hawk, fish, or fowl, such persons may be sued for *wilful* trespass the first time he comes on any person's ground, and if found guilty, must pay the *full costs of suit.*

A GAMEKEEPER.

The 23d of Charles II. c. 25, s. 2, authorises lords of manors, or other royalties, *not under the degree of an esquire,* to appoint gamekeepers within their manors or royalties, to take and seize all guns, bows, greyhounds, setting-dogs, lurchers, &c. ferrets, trammels, nets, engines, &c. for the purpose of taking and killing game. This act merely empowers gamekeepers to use means to prevent the illegal destruction of game; but the 5th of Anne, c. 14, s. 4, enables these gamekeepers to kill game upon the manor for which they are deputed, for the use of their master. Selling game, however, without the consent of the lord or lady of the manor, subjects the keeper to an imprisonment in the house of correction for three months.

The 9th of Anne, c. 25, prevents the appointment of more than one gamekeeper to one manor, though, prior to this period, the number was unlimited. The act also enjoins that the name of the person appointed shall be registered with the clerk of the peace of the county, and a certificate granted on the payment of one shilling, and to the neglect of such registers, a penalty of five pounds is attached. This, again, is rendered null by 25 George III. c. 5, s. 2, which enacts, that the deputation of a gamekeeper shall be registered with the clerk of the peace, and a certificate obtained of such registry, under a penalty of twenty pounds. Gamekeepers of the royal family are exempt from this, and the royal family themselves procure no certificate. The following is the form of a gamekeeper's deputation:

"Know all men by these presents, that I, A. B. of ——, in the county of ——, lord of the manor of ——, in the same county, have nominated, deputed, authorised, and appointed, and by these presents do nominate, depute, authorise, and appoint ——, of ——, to be gamekeeper of and within my said manor of ——, with full power, licence, and authority, to pursue, take, and kill any hare pheasant, partridge, or other game whatsoever, in and upon my said manor of ——, for my sole and immediate use and benefit: and also to take and seize all such guns, bows, greyhounds, setting-dogs, lurchers, or other dogs, ferrets, trammels, low-bells, hays, or other nets, hare-pipes, snares, or other en-

gines, for the pursuing, taking, or killing of hares, rabbits, pheasants, partridges, or other game, as shall be used within the precincts of my said manor, by any person or persons who by law are prohibited to keep or use the same. In witness whereof I have hereunto set my hand and seal, this — day of ——

"———. (Seal.)

"Sealed and delivered in the presence of ——, of —— aforesaid."

It is the duty of a gamekeeper to carry his deputation, as well as his certificate, with him, as without one or other of these he cannot legally demand the name or certificate of any other person; and, with them, his power in this respect ceases the moment he sets his foot off his own manor.

If, however, a gamekeeper be qualified in his own right, he has no occasion to enter his deputation. But a keeper is not authorised, by any statute, to seize game which he may find in the possession of poachers even on his own manor, though it is lawful for him to take their dogs, nets, or other implements. Also, gamekeepers, if found killing game off the manors for which they are appointed, are liable to the same penalties as unqualified persons. The only difference, in this case, between them is, that a gamekeeper's gun and dogs are not seizable; while those of an unqualified person may be taken.

However, though there is no legal authority for seizing the gun, &c. of a gamekeeper, he is liable, should he be seen *beating only* for game on another manor, to the penalty of twenty pounds for having no certificate, and also to five pounds more as being disqualified.

By 43 George III. c. 23, lords of manors are enabled to appoint and depute any person whatever as gamekeeper, whether acting in that capacity to any other person or not, or the servant of any other person, qualified or unqualified, to kill game within a specified manor for his own use, or for the use of any other person or persons to be specified in such appointment or deputation, whether qualified or not; nor is it necessary such person should be entered or paid for as the male servant of the lord who thus gives the deputation; and gamekeepers thus appointed are to have the same rights and privileges as if they were legally qualified and appointed as gamekeepers to the lord of such manors, under any laws in force prior to the passing of this act.

On the appointment of a new gamekeeper, a new certificate need not be taken out; but the name and place of abode of the new keeper must be endorsed on the old certificate, by the clerk to the commissioners of the district, or the penalties of the statute will be incurred.

With respect to the appointment of a gamekeeper, it appears from 23 Charles II. c. 25, s. 2, that lords of manors, or other royalties, *not under the degree of an esquire*, may appoint gamekeepers; from which it is manifest, that persons under that degree have no legal right to depute or appoint, and that gamekeepers so appointed are liable to the penalties before-mentioned.

CERTIFICATE.

By the act of 25 George III. c. 20, every person (except the royal family) in Great Britain, who shall use any dog, gun, net, or other engine for the taking or destroying of

game (not being a gamekeeper,) shall annually procure a certificate from the clerk of the county, charged with a stamp-duty of two guineas. This stamp-duty was afterwards raised to three guineas; and, in the 48 George III. c. 55. the statute underwent a sort of revision; and the sportsman is now to apply to the collector of the taxes, who will receive the money for the certificate (which is three guineas and a half,) and give a receipt for the same, for which receipt he is legally authorised to demand one shilling. The receipt thus obtained is to be delivered to the clerk of the commissioners acting for the district, who will, in return, give the requisite certificate, without any additional expense. A gamekeeper's certificate must be obtained in the same way, the expense of which is twenty-five shillings, if he be an assessed servant; and, if not an assessed servant, three guineas and a half.

The act of 48 George II. also added several birds (namely, the woodcock, snipe, and land-rail) to the list of game, as well as the rabbit; with, however, the following exceptions:—the taking of woodcocks, or snipes, in nets, or springes, and the taking or destroying rabbits in warrens, or any inclosed ground; or by any person in land which he occupies.

It should be observed, that merely the certificate will not enable a person to kill game: he must also possess the qualification by property, which we have already mentioned and explained. If a qualified person sport *without* a certificate, he is liable to a penalty of twenty pounds; if a non-qualified person kill or hunt for game *with* a certificate, he still subjects himself to a penalty of five pounds.

The commissioners for the affairs of taxes must annually insert, in one or more of the newspapers in the county, the names and residences of the persons who have procured certificates.

TRESPASS.

This term applies either to qualified or non-qualified persons; and means literally the entry of one man upon the grounds of another, without the occupier's permission, and doing some damage, however trifling, to his real property, for which an action may be brought, and satisfaction obtained according to the extent of the mischief, or the malicious intention of the trespasser. Nevertheless, in order to prevent, as much as possible, vexatious litigation, it is enacted, by 43 Elizabeth and 22 and 23 Charles II. that where less damages than forty shillings are given by the jury, the plaintiff shall be allowed no more costs than damages; unless (see 8 and 9 William and Mary, c. 11) it shall appear that the trespass was *wilful* and *malicious*, in which case the plaintiff shall recover full costs of suit.

A man becomes a *wilful* and *malicious* trespasser, in the legal sense of the term, if he enter again upon the land or manor from which he has been desired, either verbally or by a written notice, to abstain. The occupier of land can, on such land, demand the address of a sportsman, or a sight of his certificate, a refusal of which subjects the party to a penalty of twenty pounds. This demand may also be made by any assessor or

collector of taxes of the parish, commissioner, surveyor, inspector, gamekeeper of the manor, or the landlord or lessee of the land upon which the sportsman is found.

A verbal notice from the occupier or landlord is sufficient; and, indeed, the *occupier* of land has a legal right to order the lord of the manor, or even his own landlord, to abstain from sporting on the ground he occupies, unless he has secured this privilege by a clause in the lease, which sporting landlords generally take care to have inserted.

From either a keeper, or a lord of a manor, a verbal notice is not sufficient; as keepers generally carry printed notices, which ought to be drawn up in the following manner:—

"To Mr. —— Sept. 3, 1817.

"I hereby give you notice, that if you hunt, set, net, hawk, fish, or fowl, or use any other method to destroy the game upon any of my lands, manors, or royalties, within , I shall deem you a wilful trespasser, and proceed against you as the law directs.

"—— ——

"To Mr. ——"

This notice must be signed by every tenant or occupier of land throughout the manor:—if any tenant refuse his signature, the notice will not extend to the land of which he is in possession; but the mandate of the lord is generally availing (if the lease provide no remedy.) As the lord is seldom owner of the whole fee-simple of the manor, it frequently happens, that occupiers of land independent of him will have nothing to do with his notices, and from such land he cannot debar the sportsman, if the occupier have no objection to nis sporting on it

N. B. A trespass is deemed *wilful* (though no damage may have been done) where the sportsman comes upon ground from which he has been legally noticed to abstain.

A notice remains in force for the life of the individual to whom it is given; with this exception, however, that if the manor change its lord, a second notice from the new lord will be necessary; or, if any of the land change its occupier, a new notice by the new occupier must be given.

LEGAL PROPERTY.

The legal property which qualified persons have, generally continues so long *only* as the game remains *within* the limits of the manor or liberty of the owner; yet it is held, that if after having been started upon a person's own grounds, it be pursued and killed on those of another, it will, nevertheless, be the property of him who started it, because the possession which he gained by finding it within his *own liberty* is *continued* by the *immediate* pursuit. 11 *Mod. Rep.* 75. But if it be started on *another man's ground,* and killed there, it will belong to him on whose ground it was killed, this property arising *ratione soli. Lord Raym.* 251.

Moreover, if, having been started on another person's ground, it be killed on that of a *third person,* it will belong neither to him on whose ground it was started, nor to him on whose ground it was killed, but to the person who killed it, though he will be guilty of a trespass on the grounds of both the other persons.

But if a stranger start game in the *chase or free warren* of one man, and hunt it into the liberty of another, the property will continue in the owner of the chase or warren, and the keeper may pursue and retake it; for, whilst the keeper pursues it, it does not in law pass into a new liberty.

A CHASE

Is a privileged place for the keeping of beasts of chase or royal game, with exclusive power of hunting therein. 2 *Black. Com.* 38.

A FREE WARREN

Is a franchise granted by the king for the custody of beasts and fowls of warren, viz. hares, rabbits, partridges, and pheasants; but this franchise is now little known, the name being retained principally in grounds set apart for breeding rabbits. 2. *Black. Com.*

SEASONS FOR HUNTING OR DESTROYING GAME.

The season for shooting grouse (called red game) commences on the 12th of August, and concludes on the 10th of December. Heath-fowl (black game) begins on the 20th of August, and ends on the 10th of December. The mere possession of these birds at any other period of the year (except such as may be kept tame), subjects the party (13 Geo. III. c. 55.) to a penalty of not more than twenty pounds nor less than ten pounds for the first offence; and for every subsequent offence, to not more than thirty pounds, nor less than twenty pounds; half to go to the informer, and the other half to the poor of the parish; and, in case where neither penalty nor distress can be had, to imprisonment of not less than three, nor more than six months. In new forests, the season for heath-fowl does not commence till the 1st of September.

Bustard-shooting commences the 1st of September, and concludes the 1st of March; and the same penalties are attached here as for heath-fowl and grouse.

Upon grouse-mountains, or wastes, the occupier is forbidden to burn heath, furze, &c. between the 2d of February and the 24th of June, upon pain of being committed to the house of correction, there to be whipped and kept to hard labour for a period not exceeding one month, nor less than ten days.

The partridge season commences on the 1st of September, and ends the 1st of February. The pheasant season begins the 1st of October, and concludes with the 1st of February. The possession of either of these species of game at any other period (except where they are kept tame) subjects the party to a penalty of five pounds for *every bird* (2 Geo. III. c. 19, and 39 Geo. III. c. 34).

The taking of wild ducks, teal, widgeons, &c. between the 1st of June and the 1st of October, renders the party liable to a penalty of five shillings (9 Anne, c. 25, and 10 Geo. II. c. 32).

The season for hare-hunting is from Michaelmas till Candlemas; but there does not appear to be any penalty attached to the infraction of this law.

For tracing hares in the snow a penalty of twenty shillings is inflicted (1 Jac. I. c 27), and the taking them in snares or gins is punished in the same manner. The 22d and 23d Car. II. inflicts a penalty of ten shillings for this offence. These acts, however, are

not resorted to; for the true sportsman will never be guilty of such offences, and the poacher is more effectually punished by the fine attached to his want of certificate, &c.

For woodcocks or snipes there is no specified time.

To hunt or destroy game on a Sunday, or on Christmas day, or in the night (that is, between seven o'clock at night and six in the morning, from the 12th of October to the 12th of February, and between nine o'clock at night and four in the morning from the 12th of February to the 12th of October), renders the party liable to a penalty of not less than ten pounds, nor more than twenty pounds, for the first offence; for the second, not less than twenty pounds, nor more than thirty pounds; half to the informer, and half to the poor (13 Geo. III. c. 80).

By 39 and 40 Geo. III. c. 56, if two or more persons are found in any forest, chase, park, plantation, field, &c. or other open or inclosed ground, in the night (viz. between the hours of eight and six from the 1st of October to the 1st of February, or between ten and four from the 1st of February to the 1st of October), with any gun or other instrument to destroy game, the keeper or occupier is authorised to apprehend such offenders, who are liable (by 17 Geo. II.) to be committed to the house of correction as rogues and vagabonds.

By 4 and 5 Will. and Mary, lords of manors, or any persons authorised by them as keepers, are empowered to resist such offenders, and are exempted from punishment on that account.

Jac. 1. c. 27. inflicts a penalty of twenty shillings for the wilful destruction of every egg of a pheasant or partridge. The eggs of wild fowl are also protected by a statute of 25 Henry VIII. c. 11.

OF TRAFFICKING IN GAME, &c.

By the 1st of James I. c. 27, it is enacted, that if any person buy or sell any deer, hare, partridge, or pheasant, such person shall, on conviction before two justices (or at the assizes or quarter-sessions), forfeit, for every deer, forty shillings; for every hare, ten shillings; for every pheasant, twenty shillings; and for every partridge, ten shillings; half to the informer, and half to the poor. But pheasants or partridges reared by the hand, or brought from abroad, are not included in this act.

By the 5th of Anne, c. 14. s. 2. it is enacted, that if any higgler, chapman, carrier, innkeeper, victualler, or ale-housekeeper, shall have in his possession any hare, pheasant, partridge, moor or heath-game (unless where a carrier is transporting such game for a qualified person), or shall buy, sell, or expose for sale, any such hare, &c. such offending person shall forfeit the sum of five pounds; and the oath of one witness shall be a sufficient conviction; half the penalty to the informer, and the other half to the poor of the parish; to be distrained for, if necessary; and, in default thereof, the offender to be committed to the house of correction for three months; and for the second and every subsequent offence, four months.

The same act allows any person buying and selling game, to inform against any other person so offending; to have the same benefit as any other informer; and be discharged himself from penalties.

The lord of the manor, or justice of the peace, may also take to his own use any game which shall be found in the custody or possession of any unqualified person; unless protected by a qualified person.

Finally, if any person, whether qualified or unqualified, shall sell or expose for sale any hare, pheasant, partridge, or moor or heath-game, every such person shall be liable to the penalty of five pounds for every hare, &c. on the oath of one witness; half to the informer, and half to the poor of the parish where the offence was committed: the penalty to be levied by distress, if necessary; and, for want thereof, the offender to be committed to the house of correction for three months for the first, and four months for every subsequent offence. And, if any of the above-mentioned game be found in the house, shop, or possession of any poulterer, salesman, fishmonger, cook, or pastry-cook, the same shall be deemed the act of exposing them to sale.

PARTICULAR LAWS TO PREVENT THE IMPROPER DESTRUCTION OF HARES.

The act of 14 and 15 Henry VIII. c. 10, inflicts a penalty of six shillings and eightpence for tracing and killing a hare in the snow. By the 1st of James I. c. 27, three months' imprisonment is inflicted on the offender for either tracing or *coursing* a hare in the snow; unless the offending party pay to the churchwardens, for the use of the poor, twenty shillings for every hare, or within one month after commitment become bound with two sureties, in twenty pounds each, not to offend again in like manner. Two witnesses are necessary in this case, as also two justices of the peace.

The same penalty (by the same act) is also inflicted for taking hares with hare-pipes, snares, or any other engines; and, to convict, two witnesses and two justices are necessary, as in the preceding case.

By the 22d and 23d of Charles II. c. 25, if any person be found using or setting any snare, or other engine, for the purpose of taking hares, he shall make the injured party such recompence as the justice of the peace shall appoint, and pay down immediately, for the use of the poor, a sum not exceeding ten shillings; or be committed to the house of correction for a time not exceeding one month. In this case, the oath of one witness, before one justice, is sufficient; but it must take place within a month after the offence is committed.

RABBITS AND PIGEONS.

By 3 James I. no person has a right to hunt or kill conies, unless possessed of hereditaments of the yearly value of forty pounds, or be worth in goods two hundred pounds, or have an inclosed rabbit-ground of the value of forty shillings a year. An infringement of this law subjects the offender to have his dogs or engines seized by *any* person having hereditaments in fee, in tail, or for life, of the annual value of one hundred pounds in his own right, or that of his wife; who is entitled to keep them for his own use.

By 22 and 23 Charles II. c. 25, it is enacted, that if any person shall, at any time, enter into any ground lawfully used for breeding or keeping rabbits (whether in-

closed or not), and chase or kill any of these animals, against the will of the owner, not having lawful title so to do, shall, upon conviction by one witness, or his own confession, before a justice of the peace, forfeit to the injured party treble damages and costs, be imprisoned for three months, and find security for future good behaviour: but the prosecution must be commenced before the expiration of one month after the offence has been committed

By the same statute it is also enacted, that no person shall kill or take in the *night* any rabbits upon the *borders* of warrens or other grounds lawfully used for keeping conies, except the owner or lawful possessor of the ground upon which such rabbits may be found, or a person employed by such owner or possessor. An offence subjects the party to make such satisfaction as the justice shall think proper, and to forfeit, for the use of the poor, a sum not exceeding ten shillings; or be committed to the house of correction for a term not exceeding one month. This penalty too is inflicted by the same act upon any person found setting or using any snares or other engines for the taking or destroying of conies.

By 9 Geo. I. c. 22, (called the Black Act,) any person entering, *armed and disguised,* any grounds where rabbits are lawfully kept, and robbing the same; or who shall, though *not armed and disguised,* rescue any person in custody for such an offence, or procure any person to join him in such an act, such person shall be deemed guilty of felony without benefit of clergy.

The act of 5 Geo. III. c. 14, makes it transportation for seven years, or such lesser punishment by whipping, imprisonment, or fine, as the court shall think fit, for any person to enter any rabbit-ground in the night-time, and there take or kill any coney against the will of the owner, or aid and assist therein.

If rabbits, however, come upon a person's ground, and damage his herbage, or corn, it is lawful for him to kill them.

Any person who shall shoot, or destroy in any manner, any pigeon, shall, on conviction before two justices, on the oath of two witnesses, or on his own confession, pay, for the use of the poor, twenty shillings for every pigeon; or be committed to gaol for three months, and within one month after commitment find sureties not to offend again.

However, by 2 Geo. II. c. 29, one witness and one justice are sufficient; and the offender is to forfeit twenty shillings to the person who prosecutes, or be committed to the house of correction and kept to hard labour for any term not exceeding three calendar months, nor less than one.

N. B. A man has a right to shoot pigeons, as well as rabbits, if he find them destroying his corn.

According to the Mutiny Act, if any officer or soldier shall kill any kind of game, poultry, or fish, and be convicted on the oath of one witness, before a justice of the peace, the officer shall forfeit five pounds to the poor of the parish; and, if a soldier be the offender, the commander-in-chief of the place shall pay twenty shillings for every such offence; and, if it be not paid within two days after demand by the constable or overseer of the poor, he shall forfeit his commission. If however, leave be first obtained of the lord

or lady of the manor, under his or her hand and seal, there is no liability to the penalties.

The 8th of Geo. I. c. 19, provides, that, if any person shall be liable to any pecuniary penalty, upon conviction before any justice of the peace, respecting game, the prosecutor may, if he think proper, sue for the *whole* of such penalties (2 Geo. III.) in the courts at Westminster; and, if he recover the same, shall be allowed double costs, and no part of such penalty paid to the use of the poor. But such action must be brought within six months after the offence, and in the name of the attorney-general, or some officer of the stamp duties. *Burn's Inst.*

DOGS.

It is provided, by 10 Geo. III. c. 18, that if any person shall steal *any dog or dogs, of any kind or sort whatsoever,* not only from the owner, but from any person to whom such dog or dogs may have been entrusted; or shall *sell, buy, receive, harbour, detain, or keep,* any such dog or dogs, knowing the same to be stolen, every such offender, being thereof convicted, on the oath of *one* witness, or on his own confession, before two justices, shall, for the first offence, forfeit a sum not exceeding thirty, nor less than twenty pounds, at the discretion of such two justices; together with all charges previous to and attending such conviction, to be ascertained by the said justices. And if such penalty is not forthwith paid, the offender shall be committed to the house of correction, or common gaol, for a period of not less than *six,* nor exceeding *twelve* calendar months, or until the said penalties and charges are paid.

If such person be convicted of a second offence, he shall forfeit a sum not exceeding *fifty,* nor less than *thirty* pounds, together with the expence attending such conviction; and, in case of non-payment, be committed to the house of correction or common gaol, for any time not exceeding *eighteen,* nor less than *twelve* months, or until the fine shall be paid; one moiety of such penalty to the informer, and the other to the poor of the parish where the offence has been committed; and such justices shall order the offender to be publicly whipped within three days after commitment, in the town wherein such gaol or house of correction shall be, between the hours of twelve and one in the day time.

A justice of peace, upon information, may grant a warrant to search for any dog or dogs stolen as aforesaid; and, in case either dog or his skin shall be found, the said justice shall take and restore such dog or skin to its right owner, and the person in whose possession or custody such dog or skin was found (such person being privy to the theft) shall be liable to the like penalties and punishment as are inflicted on persons convicted of stealing any dog or dogs under this act. However, should any person think himself aggrieved by any thing done in pursuance of this act, he may appeal to the next general quarter-sessions, within *four* days after the cause of complaint shall arise, such appellant giving *fourteen* days' notice in writing of his intention to appeal; and the justices at such sessions shall determine the appeal in a summary way, and award such costs as they think proper; which determination shall be final.

There must certainly be a mistake of *four* for *fourteen*, or *fourteen* for *four*, for an appellant cannot give *fourteen days notice* within *four days after the cause of complaint*.

The owner of a mischievous dog, if suffered to be at large unmuzzled, may be indicted, and an action for damages will, in such case, lie against him: such action, however, cannot be brought, unless the owner had notice of his having bit some person once before.

An action will also lie against a man for keeping a dog accustomed to bite sheep, provided it can be proved that the owner knew him to be guilty of such a practice; and his having *once* wounded or killed a sheep is sufficient to constitute it.

If a dog fall upon another, the owner of the attacked dog may beat, and even kill, his enemy, in order to save him.

DUTY ON DOGS.

Every person who shall keep any greyhound, hound, pointer, setting-dog, spaniel, lurcher, of terrier, or who shall keep two or more dogs, of whatever description or denomination the same may be, shall annually pay fourteen shillings for each.

And every person who shall inhabit any dwelling-house assessed to any of the duties on inhabited houses, or on windows or lights, and shall keep one dog and no more, not being of the above description, shall pay eight shillings annually for such dog.

Th duty does not extend to dogs under six months old; the proof of the age to lie with the owner, on an appeal to the commissioners.

Persons compounding for their hounds are charged thirty-six pounds.

POACHERS.

Notwithstanding the game-laws, and the penalties enforced by them, the number of poachers is immense. Dog stealers are also as numerous as horse stealers, though the latter offence is death, yet the enormous prices, which, from a variety of causes, good horses now fetch, present to the unprincipled such temptations, that, notwithstanding the forfeiture of life, this offence is as common as the other.

For the prevention of poaching, and the preservation of game, the following hints may be found serviceable:—

The keeper ought to be a careful and honest man, to be out at night after poachers, to catch vermin, and look after his master's dogs; he ought perfectly to know his business, to be sober, secret, and so honest as not to sell or part with game on any consideration; above all, he must be fond of the recreation, have a good head to understand the schemes of poachers, and be resolute when he takes them. It is a wise plan to pay him a certain sum per head for vermin, as it will make him more expert in taking them, but by no means allow him any thing for the game he kills. He ought to rise always by day-break to look after the vermin; and earlier for poachers. Two or three persons, whose land joins, may keep a man to look after their game, &c.; another man is also occasionally necessary to assist, unless one or more of the masters will look out a little in poaching affairs.

As public-houses are the haunts of poachers

and fish-stealers, the keeper should sometimes make an errand there, to hear a little news; without seeming to pay attention to what is said, he may gain much information. If the keeper attend his church regularly, he should sometimes go back, as the poachers may watch him there, and, thinking him safe, proceed on any plan they wish; by this means he will defeat it.

VERMIN.

With respect to vermin, crows and buzzards may be caught near an old sawpit, by placing a hedge-hog cut open, or a piece of meat staked down with a small forked stick on a lump of sawdust, and putting three small steel traps round it in a triangular position, covering them over with sawdust, which will hide the traps, but not prevent them springing.

For kites, bait a trap with a bird or piece of meat, and place it in shallow water, so that the bait may be seen above the surface, but not the trap; this is almost the only way of taking ravens.

Most winged vermin must be shot.

To take stoats, weasels, and polecats, place the traps in dry ditches, and under runs at gateways, covered slightly with white feathers.

For cats, and all vermin in woods, a hutch, or chest-trap, should be set in the paths with a hedge made on each side the path up to both ends, about one foot and a half high, and ten or fifteen feet long, to turn them into it; the paths should be brushed clear from bushes, grass, &c. Also make, with six or eight hazle-rods, an arch about a foot high, two and a half broad, and three long, over a narrow part of a path, thatched with the grass and brushings of the path, then place three traps under it in and about the middle, and cover them with feathers; this will be proved to be an excellent plan for stoats, &c. Musk is said to allure stoats, or a piece of very stale rabbit.

An egg is a good bait for crows and magpies. A hedge-hog, used as before-mentioned, only in a wood newly cut, instead of a sawpit, and the traps covered with dead leaves, is a most excellent way of catching magpies and crows; when they are shy, remove it to another place, a few rods off. A jay used in the same way will take buzzards.

The following rules have been also recommended by experienced sportsmen:—

Find the nests of kites, &c. when they have hatched their young, hide yourself near enough to shoot the old birds when they come to feed them; if you have shot both old ones, of course the young must be killed, as it would be extreme cruelty to suffer them to starve.

Get a young magpie, or crow, tie it in a tree, if any are near they will soon visit it, and you may shoot several times before they will leave it. Always practise this if you wing a bird.

Provide a young cat, and tie it up where crows and magpies resort; if the cat will cry loud and frequently, (by keeping out of sight) many shots may be obtained, and particularly if the dead are not taken away.

If woods are much infested with cats, bait the hutch-traps with a red herring, and draw train-scents to them with two or three herrings tied to a string. If herrings cannot be

got, any fish dried in the sun and half roasted will answer nearly as well.

Where steel traps are used, they ought to be tied to a stake or bush. These traps may be had on reasonable terms, but care should be taken that the spring is sufficiently stiff.

When stoats and weazels have been almost exterminated, mice will multiply to a great extent, and, by eating the bark of the young shoots in coppices, do immense damage. In some measure to prevent this, do not kill, or suffer to be killed, the kestril wind-cuffer, or wind-bibber: it is a small red hawk, which hovers or flutters at one place in the air, till it sees a mouse or insect; it then darts down on it. This bird has been watched for many hours at a time, but it has never been seen to catch any thing larger than a mouse. The white or barn owl should also be spared.

In order to preserve five or six hundred acres, the principal haunt of the game should be near to the owner's house, and be as little disturbed as possible. If the house be in the midst of the land, preserve sixty or one hundred acres round it, and hunt the outsides of the estate when game is wanted; by this means it will always be near home. The keeper, if not living with his master, should have a house, where the most wood and game are. If the owner's house be on one side of the estate, preserve the woods at the back of it, and let the keeper live near the middle or farther end of the estate. The foregoing rules are applicable to large estates, only a larger quantity should be preserved near home; it may sometimes be hunted to see what game it contains; but, in general, it should be kept quiet. The pheasants ought to be fed there, and the vermin close caught off.

It is strictly necessary to look into the hares' files for wires, where they are mostly preserved. If wires, &c. have been watched by the keeper for some time, without any persons coming to them, get one or two more who may be relied on to watch them; let the keeper shew himself in the nearest village or town, at public houses where poachers frequent, or hunt at some distance from the wires, &c.; or send him away with game, or any other errand, to entice the poacher to visit his snares; for, finding the keeper out of the way, he will naturally go to see his success. When it is supposed the poachers are out, and the keeper has been his round, he should go again, as it is probable he may be watched home the first time of his going.

In large fields, hares are caught in nets set in gate or bar-ways, and in purse-nets, or wires, set in the muises; they are hunted into them by a mute lurcher or two. The gates or bars being painted white is a good preventive. An old poacher having been secretly asked how hares were mostly caught, confidentially answered by lurchers: about thirty years ago, only one or two persons in a parish knew how to set up wires; now it is so common almost every one can do it, and also find out when it is done, consequently wires are now often detected.

To prevent night coursing is almost impossible, as little noise is made except the hare cries when caught; it may, however, be seen where the hare and dogs have run; when a net is used, the marks of the meshes will be plainly seen under the gate if it be at

all dirty; in dry weather, the flix will be lying about, unless it be taken away.

Some recommend placing spring-guns at dusk, or dark, in the fields where hares feed, (clover or turnips is the most likely) about the height to shoot a dog; or at gate-ways, several dog-spills, or spikes, set in a line about a rod or two in the field; if it join a wood, set one up in every file, about a rod in; one may be placed about nine inches above the steepers of a hedge, as a dog generally leaps over when a hare takes the muise. A dog running against either of these engines, would certainly be deterred from ever running again, if it did not kill him. It is, however, worth remarking, that a gentleman had spills set in his woods; it was supposed he spiked the poachers' legs or their dogs; they, in return for his kindness, one night set a great number in a large wood (two hundred acres) and the next time he hunted several of his best hounds fell a prey to the spills. A well-trained lurcher will bring either a hare or rabbit when caught to his master, who has only to hide himself in a hedge or behind a tree; if he does not use nets, or wires, his dog or dogs will do the work without his assistance.

In a country where there are few woods, sow some small fields with furze, or plant them with fast growing wood, to shelter the hares and pheasants.

The corn-fields which lie near the woods should be narrowly watched both early and late, as it is there where the poachers shoot.

When only a wire or two are found, it is proper to watch them, unless in looking over the covers the stumps are found, and it is plain that wires have been set up; it then may be concluded they were missed by the poacher. When no marks are found, they may be put to attract the keeper's attention, whilst the poacher besets another place; if not watched, lift the wire off from the stump and leave it, as the poacher may come in a little time; if he find it safe, he will suppose no one has found it, and, perhaps, may work again.

Wires are mostly placed in the files of a standing or high wood; on the side hares go out to feed, about three or four rods in, unless the woods are well watched, then they are placed eight or ten rods in; they generally are set up by day-light, and left until next morning about one or two, except a dog is used, therefore woods ought to be looked over before dusk.

If the poacher suspects he is watched, he will sometimes lie near his wires all night. When it is suspected that wires are set up in the evening, put on a thick great-coat, carry a dark lantern under it, and examine the field about nine or ten at night.

Pheasants are caught in their roads in coppices, with horse-hair nooses, fish-hooks, and rat-traps baited with a bean; as pheasants do not move in the night, these destructive engines must be set in the day, therefore they are not very difficult to find. In winter they are set in hares' files, round the place where pheasants are fed.

If the woods be large, look out on very windy days, as persons then have an opportunity to shoot with a dog that hunts silently. Pheasants are shot at dusk, and by moon light, as they sit in the boughs or trees, or early in a morning as they are feeding in the stubbles; star-light nights are as dangerous

as moonlight. On most manors it is a custom not to shoot at hen-pheasants; which is an excellent way to stock a manor, if not carried to excess; on some preserved grounds they allow as many hens as cocks to be killed in the month of October, and cocks only afterwards.

Horse-hair nooses are generally set in a wood-hedge, by an oat-stubble; they are tied to a bough, and put at all the old muises, and every place where there is room for a pheasant to pass. Nooses and wires (like hare-wires, only smaller) are placed in coppices and in high woods, in the leading files to a stubble. Springes are always set in standing wood, as the bender of them, when sprung, would shew a bird over a coppice of two or three years growth. Generally, the poacher makes some mark where he places his snares of all descriptions; sometimes by cutting a bough off, breaking a twig so as to hang down; or bending a single scion across the files; also he cuts off all the small bottom twigs at the opening of a file, and lays a small bough to turn the game the way he wants it to go. If, on going into a wood, he does not take the paths, a post, tree, or a mark, he may make his guide when he comes the second time to know his success; these marks are easily missed by persons not used to look after woods; when found it is best to let them remain.

When a person shoots in the night very often, and he cannot be taken, if any knowledge of the man can be had, watch his house; or if more than one be suspected, next morning look near where the gun was fired, and if you find the foot-print, measure it with a keen eye, and, at some convenient opportunity, examine all their shoes, to see which comes nearest to the size of the print, but do not in the least let any one of them know what is doing. If there be nails in the shoe, it is very well to tell them.

If a wood have a pond in it, look it carefully round, as springes, &c. are often set for pheasants as they come to drink; they are very fond of lying in the flags and rushes round it. Some recommend stacking buckwheat in the woods; it is a very bad plan, as the poachers soon find it out, and work round it. The best method of feeding pheasants is, to rake out the earth about six inches deep, between the claws of a large tree, bury the corn in it, lay a little on the top of the earth and round about it; they will soon find and scratch it out: this is to be done at several places in the preserve and near to water, which is most necessary in keeping these birds; but all pains and trouble will be of no use if the covers be continually pestered with dogs and guns.

When the woods are small, walk round the outsides of them; if the ground be moist it may be seen if a person has gone into them; if there be marks of feet, follow them to see whether they are poachers or not.

Hunt clover and grass fields early, and as near to mowing as it is possible; that will prevent pheasants and partridges breeding there; it will make them remove to corn-fields, where they should not be disturbed on any account

On large estates, in the shooting season, partridges should be disturbed early in the morning to prevent persons shooting; but on small ones, the less they are moved the better, as the land is not such a distance from

home; but a sportsman may be prevented from having more than three or four shots. It is proper to kill some birds from every covey; if they are left untouched few will be had the next year. Wheat stubbles should be bushed over with bramble and thorn-bushes to prevent partridges being netted.

In snow, partridges, and, indeed, all kinds of game, are easily found and shot, as they are plainly seen, and are very tame; every person carrying a gun ought to be watched. It is to be hoped, that no person who calls himself a sportsman, would shoot at game at that time, but do his utmost to prevent others. Partridges, it is said, are caught by limed-twigs, and are found by hunting a pointer or setter round the hedges, as they cannot fly. Mr. Thornhill, in his Shooting Directory, mentions it; and it is also spoken of in several sporting books. It is certain that it cannot answer on ground that is at all hunted, as it must be easily found out, and require some considerable time to complete it in.

RABBITS

As these animals afford considerable sport, the following observations may be found necessary:—

A few rabbits turned out in the spring into a wood of a dry light soil, will breed plenty for the sportsman's diversion, and will dig themselves earths if they like the wood; should they not breed well the first season of turning out, they must be spared the next winter. Any person who may have a few acres of sandy land, should sow spots of furze of an acre or two each on it, and turn out some rabbits; they will, in running from furze to furze, shew very great sport. Should they make many burrows, stop the most of them with a wisp of grass, and take it out when as many as are wanted are killed. Two or three beagles are the best dogs to hunt them.

It is well known to experienced sportsmen, that some days' rabbit-shooting have very far exceeded the best days' pheasant-shooting, in number of shots.

Poachers will catch rabbits, either by ferreting the earths, coursing with a lurcher in nets, in wires, the same as hares, only they are not set so high, or shoot them where they feed at dusk, or by moonlight. Cats must be destroyed. It has long been thought hares will not lie in a wood with rabbits: this is very wrong; on an estate belonging to a sportsman of celebrity, they shoot one hundred couple of rabbits in a year, and near half that number of hares.

ON THE DOCILITY, SAGACITY, AND FIDELITY OF THE DOG, WITH ILLUSTRATIVE ANECDOTES.

HAVING already alluded to the docility and sagacity of this animal, in our observations on training up dogs, we shall confine our present remarks to a confirmation of those qualities. Nature, undoubtedly, gave to the original dog all the ferocity so usually met with in the English mastiff; but the determined perseverance, the contempt of pain, danger, and death, that characterize the bull-dog, are cultivated properties. Every dog instinctively crouches and points previous to the attack he makes; whereby, his form is altered, or his bulk diminished, in order to surprise his prey, or to deceive his adversary. Thus, a steady point between two mongrels may be frequently witnessed: therefore, as this property is common to all, the introduction of a pointer and setter was probably a chance selection of two strong kinds of dogs accustomed to hunt. In these the instinctive principle was cultivated and improved till it became perfectly subservient to the purposes of the sportsman.

By domestication and cultivation, all the other admirable properties observable in this animal have been matured, and brought to their present perfection. Every day affords fresh instances of the docility and sagacity of the dog. The master of a Newfoundland dog laid a wager with a friend that the animal would bring him back a piece of money which he laid under a stone, near a building, in a road. He had previously shown the money to the dog, who marked the place where it was deposited. The gentleman having returned home with his friend, which was the distance of about three miles from the road where the money lay, ordered the dog to be fed. When he thought he had sufficiently rested, he ordered him to go look for the money, and bring it to him. The evening and night, however, elapsed, and no dog returned. The next morning the master concluded that his wager was lost, and offered a reward for his dog. On the third day the gentleman had a large party, and in the evening, while the company were at tea, the dog ran in with a pair of breeches in his mouth! The master found his money in the pocket of the breeches, and the owner thereof having advertized his loss, an explanation took place. He had seen the dog in great agitation in the road, and removed a plank which one of the workmen employed at the building had laid down on the stone which covered the money. He also found the money, but not deeming that the object of the dog's search, put it into his pocket, and continued to examine the ground, as he suspected some murdered

body had been hid there. Being, however, caressed by the dog, who followed him wherever he went, he thought no more about it, but mounted his horse and proceeded home, which was at some distance. The dog never quitted him, and, being considered an unfortunate wanderer, the gentleman took compassion upon his unexpected guest, and allotted him a place for his abode, but did not admit him into his bed-chamber. It seems, however, that the dog watched an opportunity of carrying off his prize, which created no small confusion when the gentleman arose to dress himself.

Several stories have been related of the sagacity of the dog, but they have appeared so repeatedly in print, that we shall prefer anecdotes of a more novel nature Many, no doubt, have often noticed the wonderful sagacity of a little white dog which has been a recent visitor to London. His master, a foreigner, sometimes goes about the streets playing on an organ, and this pauper is entirely supported by his faithful dog, who carries a hat to every door for a donation. In the summer of 1817, this suppliant appeared at the door of a house in Richmond-buildings, Dean-street, Soho, and a child was sent to give him a halfpenny. The child, however, (a little girl) was afraid of the dog, and threw the halfpenny down: the dog immediately picked up the gift, brought it to his master, and put it into his pocket; he then returned to the same door, and gave three barks, (this being his mode of returning thanks) and repeated his applications elsewhere.

To this faithful animal man has been often indebted for the preservation of his life. Mr. Walker, an auctioneer, since deceased, was, during a journey, with considerable property in his possession, accompanied by his terrier to an inn, where, having supped, he prepared to go to bed. On entering the chamber allotted to him, the dog displayed uncommon symptoms of uneasiness. In short, he would not suffer his master to undress, and Mr. Walker, surprized at his agitation, and conceiving that it arose from some latent and important cause, remained sitting on his bed while the terrier lay at his feet. Suddenly the dog sprang up, and seized a man by the throat, who begged Mr. Walker to call off the dog, promising to surrender himself.

On being released from the gripe of the dog, the man confessed that he had way-laid the gentleman, took some refreshment in the inn on purpose to discover his bed-chamber, and found means to secrete himself in a closet for the purpose of plunder. Mr. Walker always prized this faithful terrier; but, we are sorry to add, that, after the death of his master, this poor animal, because he was ugly, was entirely neglected by the surviving relatives, (though Mr. W. had left behind several children) and was suffered to perish of absolute want in a field!

A native of Germany, fond of travelling, was pursuing his course through Holland, accompanied by a large dog. As he was walking one evening on a high bank, which formed the side of a dyke, his foot slipped, and he was precipitated into the water, and, being unable to swim, soon became senseless. When he recovered his recollection he found himself in a cottage, on the contrary side of the dyke, surrounded by peasants who had

been using the means so generally practised in that country for the recovery of drowned persons. The accounts given by the peasants was, that one of them returning home from his labour, observed, at a considerable distance, a large dog in the water swimming and diving, and sometimes pushing something that he seemed to have great difficulty in supporting, but which he at length succeeded in getting into a small creek on the opposite side to that on which the men were. When the animal had pulled what he had hitherto supported as far out of the water as he could, the peasants discovered that it was the body of a man. The dog having shaken himself, began most affectionately to lick the hands and face of his master, while the men hastened across, obtained assistance, and conveyed the body to a neighbouring house. Two very considerable bruises, with the marks of teeth, appeared, one on his shoulder, and another at the root of the poll of the head; whence it was presumed that the faithful animal first seized his master by the shoulder, and swam with him in this manner for some time, but that his sagacity prompted him to let go his hold, and secure his neck, which enabled him to support his load, and keep it out of the water.

In Mary-le-bonne parish a servant carelessly left a child, four years old, alone, whose cap caught fire from a candle with which she was amusing herself. A small terrier, agitated by the situation of the child, barked so violently and dreadfully that timely assistance was procured. At another time, a terrier bitch, perceiving the skirts of his mistress's gown on fire, caught hold of it, and dragged her on the carpet, which extinguished the flame.

Noble and generous as the horse is, yet the dog's disposition is, in many instances, more amiable. He will fight for, and even die in the defence of, his master, or any of the family; yet most patiently endure all insults offered to himself. He is grateful for all the favors which he receives, though, too often, his services are repaid by base ingratitude. Some time ago, an inhuman bricklayer took his dog with him up a scaffold, but, on his return, forgot to carry him down again. The poor animal whined for assistance, which the wretch heard, but would not trouble himself to re-ascend the ladder. The dog, seeing his cruel master about to depart, leaped from the height, and broke his thigh. The dog, it is said, was rewarded for his courage and attachment by a severe kick; but notwithstanding, he limped home, apparently comforted by having rejoined his master. Every humane person must conclude that the story has been exaggerated.

The fidelity of the dog is every day conspicuous; how often does the butcher entrust his meat to the care of a mastiff; who, though ever so hungry, refrains from satisfying his appetite, and patiently waits for the bits and bones which are given to him. A half-starved meagre cur may be often seen in the middle of a wheelbarrow, which contains food for other dogs and cats: though surrounded with horse-flesh he neither touches it himself nor suffers any other animal to approach it. No bribe whatever can make a dog which is properly trained up to be the guardian of goods, betray the trust which is reposed in him: his fidelity is without interest, and not to be corrupted. Every cat, though well-fed, will steal whenever an opportunity offers, but

a dog has frequently prevented puss from committing depredations, by extending itself before a joint of meat, a fowl, or a dish of fish, and snarling whenever the thief approaches. Spaniels are particularly remarkable for thus guarding victuals, &c.

The following anecdote, recorded by the late Mr. C. Dibdin, affords a striking instance of the attachment of a dog:—

"A gentleman, who had a dog of a most endearing disposition, had an occupation which obliged him to go a journey periodically, about once a month. His stay was short, and his departure and return regular, and without variation. The dog always grew uneasy when first he lost his master, and moped in a corner, but recovered himself gradually as the time for his return approached. When he was convinced that his master was on the road, at no great distance from home, he flew all over the house, and if the street-door happened to be shut, he would suffer no servant to have any rest till it was opened. The moment he obtained his freedom, away he went, and, to a certainty, met his benefactor about two miles from town. He played and frolicked about him till he obtained one of his gloves, with which he ran, or rather flew home, entered the house, laid it down in the middle of the room, and danced round it. When he had sufficiently amused himself in this manner, out of the house he flew, returned to meet his master, and ran before him, or gambolled by his side till he arrived with him home. This lasted till the old gentleman grew infirm, and incapable of continuing his journies. The dog, by this time, had also grown old, and became at length blind, but this misfortune did not hinder him from fondling his master, whom he knew from every other person, and for whom his affection and solicitude rather increased than diminished The old gentleman, after a short illness, died. The dog *knew the circumstance,* watched the corpse, blind as he was, and did his utmost to prevent the undertaker from screwing up the body in the coffin, and most outrageously opposed its being taken out of the house. Being past hope, he grew disconsolate, lost his flesh, and was evidently verging towards his end. One day he heard a gentleman come into the house, and rose to meet him. His master being old and infirm, had worn ribbed stockings for warmth. This gentleman had stockings on of the same kind. The dog, from this information, thought it was his master, and began to demonstrate the most extravagant pleasure; but, upon further examination, finding his mistake, he retired into a corner, where, in a short time, he expired!"

The sagacity of the dog has, by some of his admirers, been ridiculously considered as a kind of *rationality,* or *intelligence.* How could the dog *know the circumstance of his master's death?* The mistake which occurred evidently proved the contrary. There is also something paradoxical in a *blind* dog being deceived by ribbed stockings: a dog acts chiefly by scent, and not by sight, and is endued with a most wonderful share of instinct. We are told, that a butcher in Cumberland had a dog, which, with uncommon adroitness and dexterity, managed the cattle. He became so well convinced of this dog's expertness, that he laid a wager he would entrust him with so many sheep and oxen

to drive, unaccompanied by any man, to Alstone market. It was stipulated that no person should be within sight or hearing who had the least controul over the dog, nor was any spectator to interfere, or be within five hundred yards. On trial, this extraordinary animal executed his task in a most astonishing manner; and, although he had frequently to drive his charge through other herds who were grazing, yet he never lost one, but, conducting them into the very yard where he was used to drive them when with his master, he significantly delivered them up to the person appointed to receive them, by barking at his door. It is also remarkable, that when others were grazing in any place through which the herd travelled, the dog ran forward, stopped his own drove, and then, driving away the strangers, collected his scattered charge and proceeded. He was several times afterwards thus sent alone for the convenience of his master, or for the amusement of the curious, and always performed his task to the satisfaction of all. A gentleman, who heard of this dog's dexterity, gave a considerable sum of money for it.

This dog certainly distinguished his own herd by their smell, and not by their colour, or any other marks: his sagacity, however, in keeping them from mixing with others cannot be denied.

It is a common thing for a dog to carry a basket with money in it for articles, and to return to the family with those articles safe. A gentleman had a Newfoundland dog who went every morning to the baker's for rolls: he also carried letters to the post-office, and always went to his own horse flesh dealer for his meat. The Poodle breed are remarkable for performing the offices of a domestic; they can be taught to shut and open doors, ring bells, &c.

We have, however, intimated, that this animal's sagacity is carried to an extravagant length by some writers; and this may, in a great measure, account for the romantic tales of which they are the *heroes* at our theatres. Some writers have inferred, that dogs have the "faculty of remarking time, and informing themselves of the moment of recurring periods," &c. In the anecdote which we have already quoted from Mr. C. Dibdin, the author has ridiculously asserted, that the dog "*knew to an hour, nay, to a minute,*" the time of his master's return. There were certainly preparations for the old gentleman's return, which served as a clue to the dog's sagacity; and, on seeing these preparations, the animal immediately took the road to meet him.

The following anecdote is recorded as a confirmation of the dog's faculty of remarking time:—

"A dog, who was several weeks in the infirmary, and attached to the premises, was visited every Sunday by his master, who never could find leisure to see him at any other time. Though no alteration was made in the treatment of the dogs around, nor any thing done on the premises on that day different from what was done every other day, yet this faithful animal *knew very well when Sunday morning arrived.* Stationing himself at the door, he left it not one moment till his master had paid his accustomed visit. This was so well marked, and occurred so regularly on every Sunday, and on that day only, that no possible doubt could be entertained as to the circumstance."

The ringing of the church-bells was alone

sufficient to apprise the dog of his master's coming: it is only by this, or similar signs, that a dog could know when Sunday morning arrived.

These animals certainly distinguish voices, which is a proof of wonderful instinct; those accustomed to be fed in London by particular dogs'-meat sellers, will instantly know the call of his butcher, though two or three of the same trade may be together in the street: it may be thought, indeed, that they *know the time* of their arrival; but hunger is their master on this occasion.

Like the horse, a dog possesses the extraordinary faculty of finding his home from any distance, though a heavy fall of snow might conceal the track from either sight or scent. If the earth be thus suddenly obscured, and the whole surface be covered with snow, turn a horse repeatedly round, and, notwithstanding all attempts to bewilder him, yet, at the moment he is left at liberty, with little or no hesitation, he directs his head towards home, and, if unmolested, arrives there in safety. In like manner a dog will find his way, and even return to any spot though unassisted by any object for sight or scent; let the distance be one, ten, or twenty miles, this extraordinary faculty is alike active and certain. The author of the "Tableaux Typographiques de la Suisse," in his description of the Alps and Glaciers, relates the following circumstance:—

"The Chevalier Gaspard de Brandenberg was buried, together with his servant, by an avalanche, as they were crossing the mountain of St. Gothard, in the neighbourhood of Airolo. His dog, who had escaped the accident, did not quit the spot where he had lost his master for some time. Happily, this was not far from a convent. The faithful animal scratched the snow, and howled for several minutes with all his might; he then ran to the convent, returned, and then ran back again. Struck by his perseverance, the domestics followed: he led them directly to the spot where he had scratched the snow, and the chevalier and his servant were dug out safe and well."

In like manner, sheep, which have been buried in snow, have been discovered and preserved: the breath, however, will melt a certain portion of the snow, and, in this instance, a dog may be assisted by his scent.

Dogs have been kept by the monks of the monasteries in the Swiss Alps for the express purpose of hunting, during heavy snow storms, for travellers who may have fallen into cavities or pits, in which situations they would soon, if no timely assistance were administered, be starved or frozen to death. These dogs were sent out in pairs, and, being perfectly conversant with their employ, traversed a great extent of country round. By marks in the snow, but principally by the scent formed from the breath of persons so situated, exhaling through the mass, they discovered the pits that contained the buried travellers; in which case, they instantly returned, and gave the alarm, and then led the benevolent monks to the relief of the distressed persons.

A gentleman having brought from Newfoundland a dog of the true breed, gave it to his brother, who resided in the neighbourhood of Thames-street, London; but who, having no other means of keeping the animal except in close confinement, sent him to

a friend who was living in Scotland. The dog, who had been originally disembarked at Thames-street, was again re-embarked at the same place on-board a Berwick smack; by which means, during his stay in London, he had never travelled half-a-mile from the spot he first landed at. During the short time he remained, he had, however, contracted a friendship for his master, and when he arrived in Scotland, his regret at the separation induced him to take the first opportunity of escaping; and, though he certainly had never before travelled one yard of the road, yet he found his way back in a very short time to his former residence on Fish-street-hill; but in so exhausted a state that he had only time to express his joy at seeing his master, and expired within an hour after his arrival.

About the year 1810, a dog who lived with a family at Brompton, and who was endeared to them on account of his affection for his deceased master, was stolen by a relative resident in Oxford, who took him there in the stage-coach. He was kept tied up two or three days, but when he recovered his liberty he ran away, and found the means to reach his former situation in Brompton; but was so exhausted that he immediately expired.

A spaniel-bitch, bred in London, was brought in a chaise to Essex, at the distance of forty-eight miles, where she remained some months. She was given to a friend to breed from, who afterwards brought her back to London in a similar manner, and left her in a kennel, from whence she contrived to escape during night, by digging her way out in a most extraordinary manner, and travelled the whole forty-eight miles back into Essex so expeditiously that the servant saw her at the door of the residence early in the morning. The bitch remained at large during the day, and actually returned again to London in search of her original master.

It is recorded, that Lord Maynard lost a coach-dog in France, which he, in vain, endeavoured to recover. His lordship returned to England, where, to his great surprise, he found the dog, but the mode of his return could never be ascertained. It is supposed, that the dog, when he made his escape from confinement, went to the sea-coast, and found means to get on-board some vessel bound for England. These animals will frequently attach themselves to persons for sinister motives; this is evident from the anecdote already mentioned, of the dog following a man for the sake of his breeches. No doubt Lord Maynard's animal caressed the captain, and, by a temporary attachment, obtained a passage home.

Though dogs are inclined to greediness, they can abstain from food for a length of time, satisfying nature, in the interim, by the bones which they casually find. A bitch was accidentally locked up for several weeks in St. Paul's cathedral, yet recovered on being released, though afterwards run over and killed by a waggon. Their sagacity is frequently displayed by their various modes of obtaining food. A poor man's dog has often concealed himself for the purpose of profiting by a rich man's table. Sometimes, when he has had his usual quantum at home, he will pay visits to his master's acquaintances, particularly those from whom he has been accustomed to receive favours, and if he cannot

immediately manage all he gets, he sagaciously conceals the overplus until his next visit. The late tourist, Mr. C. Dibdin, has recorded the following curious anecdote.

" At a convent in France, twenty paupers were served with a dinner every day at a given hour. A dog belonging to a convent did not fail to be present at this regala, because of the odds and ends which were frequently thrown down to him. The guests, however, being poor and hungry, the dog did not get much. The portions were served one by one, at the ringing of the bell, and delivered out by means of what, in religious houses, is called a *tour,* which is a machine like the section of a cask, that, turning round on a pivot, exhibits whatever is placed on the concave side, without discovering the person who moves it. One day this dog, who had only received a few scraps, waited till the paupers were all gone, took the rope in his mouth, and rang the bell. This stratagem succeeded. He repeated it the next day with the same good fortune. At length the cook, finding that twenty-one portions were given out instead of twenty, was determined to discover the trick, in doing which he had no great difficulty; for, being hid, and noticing the paupers as they came in great regularity for their different portions, and that there was no intruder except the dog, he began to suspect the real truth, which he was confirmed in when he saw him wait with great deliberation till all the visitors were gone, and then pull the bell. He was every day afterwards rewarded with a plate of broken victuals, which he punctually rang for."

Mr. Douce, of Hampstead, (cryer of the Court of King's Bench, in Lord Mansfield's time,) had a favorite pointer, whose fore-leg, in jumping a gate, wasbroken. Unwilling to lose him, Mr. Douce took him to his friend, a surgeon at Mill -hil, who set the leg, and put on the proper bandage, and, about once a-week, Mr. Douce went with *Cato* to the surgeon's to have the leg inspected. After continuing so to do for a time, the surgeon one day informed him that he need not take the trouble of walking there with *Cato,* for that *Cato* frequently came by himself to have his leg looked to, and continued to do so till his leg was well.

Some time after the leg was cured, the surgeon one morning, while at breakfast in a room behind his shop, saw *Cato* jump the half-door, and observed to his wife, that his old friend was come to see him. The dog approached, and shewed signs to the surgeon that he wanted the door opened; on going to which the surgeon found that *Cato* had brought him a patient which he had picked up, a poor terrier, with a broken leg.

The following is another authenticated instance of this animal's sagacity. About the year 1811, a gentleman gave a greyhound bitch, named *Trenck,* to his brother, residing at Blackheath, who received her as a pensioner, by way of reward for her past services (which had been eminent,) that she might pass the remainder of her days in ease, in preference to hanging her, because she could no longer " take the lead and keep it." She arrived there on a Sunday, and remained apparently satisfied with her new quarters, until Tuesday afternoon, when she absconded, and, on the following Friday, made her appearance at home, so completely exhausted

that she had not strength left to lap a little milk. The distance is not very great (about forty-two miles) but what rendered it very extraordinary, was her coming through such a place as London, and of course over one of the three bridges, usually so crowded, excepting for three or four hours in the middle of the night, particularly as she had never been even used to a country town, but first saw light, and passed the whole of her life, at a lone insulated house. She was a white bitch, excepting her ears, which were yellow, and remarkably fond of being noticed, so that it is wonderful she escaped being taken up in London, had she come through in the daytime; it is, therefore, probable that she passed through in the night.

Poor *Trenck* had better have remained in Kent, as, about a month after her return, she was bitten by a mad dog, with five or six of her companions, and was, in company with them, immediately shot.

The amazing sagacity of the dog, his gratitude, his unshaken fidelity, that acute sense of shame which often betrays his faults, and consciousness of good desert with which he comes to claim the reward of his services; all these circumstances approximate very nearly to that which we observe in the human character. These qualities, together with his great utility for various purposes, have rendered him the constant attendant and principal favourite of man. Every anecdote that tends to elucidate the nature and powers of this very superior animal, must be particularly amusing and interesting to all the lovers of natural history.

A gentleman, who usually spent the winter months in the capital of North Britain, having gone with his family to pass the summer at his country seat, left the care of his town residence, together with a favourite house-dog, to some servants, who were placed on board-wages. The dog soon found board-wages a very short allowance, and, to make up the deficiency, he had recourse to the kitchen of a friend of his master's, which in latter days he had occasionally visited. By a hearty meal, which he received here daily, he was enabled to keep himself in good condition till the return of his master's family to town, on the approach of winter. Though now restored to the enjoyment of plenty at home, and standing in no need of foreign liberality, he did not forget that hospitable kitchen, where he had found a resource in his adversity. A few days after, happening to saunter about the streets, he fell in with a duck, which, as he found it in no private pond, he concluded to be no private property; he snatched up the duck in his teeth, carried it to the kitchen where he had been so hospitably fed, laid it at the cook's feet, with many polite movements of his tail, and then scampered off with much seeming complacency, at having given this testimony of gratitude and sense of favours.

Those valleys, or *glens,* as they are called by the natives, which intersect the Grampian mountains, are chiefly inhabited by shepherds. The pastures, over which each flock is permitted to range, extend many miles in every direction. The shepherd never has a view of his whole flock at once, except when they are collected for the purpose of sale, or shearing. His occupation is to make daily excursions to the different extremities of his pastures, in succession, and to turn back, by

means of his dog, any stragglers that may be approaching the boundaries of his neighbours. In one of these excursions a shepherd happened to carry along with him one of his children, an infant about three years old. This is an usual practice among the Highlanders, who accustom their children from the earliest infancy to the rigours of the climate. After traversing his pastures for some time, attended by his dog, the shepherd found himself under the necessity of ascending a summit at some distance, to have a more extensive view of his range. As the ascent was too fatiguing for the child, he left him on a small plain at the bottom, with strict injunctions not to stir from it till his return. Scarcely, however, had he gained the summit, when the horizon was suddenly darkened, by one of those impenetrable mists which frequently descend so rapidly amidst these mountains, as in the space of a few minutes almost to turn the day to night. The anxious father immediately hastened back to find his child, but, owing to the unusual darkness, and his own trepidation, he unfortunately missed his way in the descent. After a fruitless research of many hours, amongst the dangerous morasses and cataracts with which these mountains abound, he was at length overtaken by night. Still wandering on, without knowing whither, he at length came to the verge of the mist, and, by the light of the moon, discovered that he had reached the bottom of his valley, and was now within a short distance of his cottage. To renew the search that night was equally fruitless and dangerous. He was, therefore, obliged to return to his cottage, having lost both his child and his dog, who had attended him faithfully for years.

Next morning, by day-break, the shepherd, accompanied by a band of his neighbours, set out in search of his child; but, after a day spent in fruitless fatigue, he was at last compelled, by the approach of night, to descend from the mountain. On returning to his cottage, he found that the dog, which he had lost the day before, had come home, and, on receiving a piece of cake, had instantly gone off again. For several successive days the shepherd renewed the search for his child, and still on returning home in the evening to his cottage, he found that the dog had been home, and, on receiving his usual allowance of cake, had disappeared. Struck with this singular circumstance, he remained at home one day, and when the dog as usual departed with his piece of cake, he resolved to follow him, and find out the cause of his strange procedure. The dog led the way to a cataract, at some distance from the spot where the shepherd had lost his child; the banks of this cataract almost joined at the top, yet separated by an abyss of immense depth, which so often astonishes and appals the travellers that frequent the Grampian mountains, and indicates that these stupendous chasms were not the silent working of time, but the sudden effect of some violent convulsion of the earth. Down one of these rugged and almost perpendicular descents, the dog, without hesitation, made his way, and at last disappeared into a cave, the mouth of which was almost upon a level with the torrent. The shepherd with difficulty followed, but, on entering the cave, what were his emotions, when he beheld his infant, eating with much satisfaction the cake the dog had just brought him, while the faith-

ful animal stood by, eying his young charge with the utmost complacence. From the situation in which the child was found, it appears that he had wandered to the brink of the precipice, and then either fallen or scrambled down till he reached the cave, which the dread of the torrent had prevented him from quitting. The dog, by means of his scent, had traced him to the spot, and afterwards prevented him from starving, by giving up to him his own daily allowance. He never quitted the child by night or day, except when it was found necessary to go for its food, and then he was always seen running at full speed to and from the cottage.

Nature often produces monsters, either by excess or defect. The following account of the sagacity of a canine *lusus naturæ* was first communicated to the public by M. Feret, jun. in the Journal de Physique for the month of August, 1810:—

In the month of May, 1808, at Paris, a black spaniel bitch, with red spots, pupped eight young ones: she was only allowed to keep four, and of these four it was discovered in a few days that one of them was deprived of the two front legs. It was thought it would not live; but this defect of conformation did not prevent it growing equally as fast and as strong as the others; and it was two years old when the following description of it was drawn up.

Two-legs, (for so she was called) had a considerable resemblance to the wolf-dog, but the body was more elongated. Her hair was long, rather rough, and of a brown colour. She often carried her ears erect; her tail was a good deal like that of the fox, not only in its form, but also in the manner in which she carried it. She would caress very freely, and approached towards persons whom she knew, upon her two hind-legs, which she held wide apart, and toes very open. If she wished to advance quickly, she used the under part of her neck as a third leg to support herself with, and then proceeded with considerable velocity by successive leaps and springs; but this constrained progression fatigued her very much; her respiration seemed to be interrupted each time her neck touched the ground, and to save her head and nose from the blows which they were likely to receive, the muscles of the neck were always in a state of contraction, in order that the head might constantly be erect.

If *Two-legs* heard any noise, she immediately sat upright, even for a considerable time. If she wished to go up stairs, she effected it pretty easily by means of her neck, but to descend was absolutely impossible. In 1809, this extraordinary creature had six young ones, none of which were in any manner deformed.

LAW CASES RELATIVE TO DOGS.

The dog has been the cause of much contention, both in the field and in the courts of justice: we have had a recent instance of a fatal duel occasioned by this animal; and the wanton destruction of sporting dogs has produced some remarkable decisions.

CORNER *v.* T. S. CHAMPNEYS, ESQ. AND ANOTHER.

This was an action brought against T. S. Champneys, Esq. and his gamekeeper, Ralph Crozier, for shooting the plaintiff's greyhound, which was proved, by several sporting gentlemen, to be of such extraordinary value, that, had it been their own, they would not have taken fifty, or even one hundred guineas for her. It appeared, that Mr. Champneys had ordered his servants to destroy all dogs found on his premises: and one witness stated, that the greyhound was forcibly taken and tied to a stump in Mr. Champneys's wood, and there shot and buried. This action was attempted to be justified by Mr. Champneys having caused boards to be put up on the outside of his grounds, specifying, that all dogs found therein would be shot; but, the judge was clearly of opinion, that such notice could not justify them in shooting the greyhound: and he, in summing up the evidence, animadverted on Mr. Champneys's conduct in suffering such a cause to be brought into court; observing, that if Mr. Champneys authorized such practices in his keepers, he would find it in the end a losing game. The learned judge directed the jury to find for the plaintiff to the full value of the greyhound, and the jury, without hesitation, accordingly returned a verdict, damages fifty pounds.

This cause, which was decided at the Somerset assizes, in 1814, was of importance to the sporting world, as it promulgated a law not generally known: that no gentleman, however exalted his station, has a right to destroy greyhounds, or dogs of any other description, being the property of other persons, whether trespassing or not: cautionary boards are of no avail.

DEAN *v.* SIR WILLIAM CLAYTON, BART.

This was an action tried at the assizes in Oxford, 1814, to recover the value of a dog, killed by means of a dog-spear, in a wood called the Moor-wood, the property of Sir William Clayton, Bart. This wood, which is near six miles in circumference, and is situated on the confines of Oxfordshire and Buckinghamshire, had for several years been converted into an enormous game-preserve by the owner, whose estate it joins for about one mile and a half only, afterwards abutting, for a space exceeding four miles more,

on the lands of different proprietors, in both the counties before mentioned, to the great loss and injury of the farmers of those lands. The destruction committed by the immense number of wild animals to which so large a wood afforded protection, became so serious a grievance, that one farmer, Mr. Benjamin Stallwood, of Becking, actually renounced his farm; and his landlord, Mr. Johnson, together with Mr. Copestake Townsend, the landlord of another farm adjoining, called Finnimore, published an invitation in the newspapers to all qualified persons to sport upon their estates. This, however, did not afford an adequate remedy for the evil; because the different keepers belonging to this vast preserve, made it their constant practice every morning, before sun-rise, (Sundays only excepted) to drive all the game from the adjoining grounds into the preserve, and then to fix their dog-spikes in all the tracts by which the game entered the wood; so that if any sportsmen arrived afterwards, little or no game was to be found on the grounds contiguous to this vast wood, although the produce of those grounds was constantly eaten up by them; and if, unfortunately, these sportsmen started a solitary animal, it was sure to take to this well-known asylum, and the dog by which it was pursued was as certain of being destroyed by the sharp spikes which guarded every inlet.

Mr. Dauncey, in stating the case to the jury, lamented that the defendant had not adopted a more manly line of conduct. It would have better become him either to have *justified* the act he had done, or if not justifiable, to have admitted his error; but, instead of this, pleaded not guilty to the charge, denying that he was the cause of the mischief; and he understood it was now intended to be maintained, that Sir William Clayton was totally ignorant of what was done in this wood, of which he was sole proprietor; that it had never been made a game-preserve with his knowledge and consent; although, as such, it was a well-known nuisance to all the surrounding country, and had drawn him (Sir William) into many unpleasant altercations. Several persons in the employment of the defendant, as gamekeepers, &c. would, he said, be brought forward; and though he was aware that they would turn out to be very *reluctant witnesses*, yet he hoped he should be able to *screw* the truth out of them.

The first person examined was the Rev. Mr. Turner, of Great Marlow, to prove the killing of the dog. He deposed, that he went with the plaintiff, Mr. Dean, to shoot, on Finnimore farm, by leave of Mr. Townsend; that in Finnimore-wood they started a hare, which took directly into the Moor-wood; and that the only boundary between the two woods was a shallow ditch. Mr. Dean's dog pursued the hare, and was soon caught upon a dog's-spear, which entered his breast; on being drawn off the spear, he instantly died. A plan of the wood was exhibited to the court, by which it appeared to be intersected with roads in different directions: also, the fatal spear itself was produced; the sight of which made a sensible impression on both the judge and the jury. It was confessed to be a very formidable instrument of destruction either to man or beast; and it was proved, that several of these spears were placed close to the foot-paths, frequented by men, women, and children likewise

Stevens the blacksmith, who made the

spears, was then examined; he positively swore, that he did not know what use they were made for; that he did not think Sir William Clayton knew any thing about them; that Joseph Webb, a farmer, under Sir W. Clayton, and also one of his game-keepers, paid him for making them. It appeared, however, that this man was but a journeyman blacksmith; that he manufactured Sir William's iron at so much a day, and that he had carried a large quantity of these spears, made out of strike-iron, to House, the game-keeper, who lives in the Moorwood.

House being sworn, declared that he was not hired to look after the game, but to take care of the wood; that he knew nothing about dog-spears; that sometimes he had seen such an instrument as was shown to him in court, sticking in a tree, but could not tell what it was for, or who placed it there. Being examined as to the place where the dead dog was found, he said he did not know how it was killed, nor the distance from the boundary, whether it was fifty yards, one hundred, or one hundred and fifty yards, but afterwards contradicting himself, he said it was sixty-five yards, for he had measured it.

Woodrow, another game-keeper, was sworn; he likewise did not know what was meant by a dog-spike, and was sure his master, Sir William Clayton, had never ordered any such things to be set in the wood. Being shewn one, and asked if he had never seen such a thing before, answered, yes, he thought he had.—Where? In the wood.—What did he think it was put there for? To destroy foxes.

"Admirable!" exclaimed Mr. Dauncey to the jury. "Gentlemen, you have heard, as well as I, that foreign foxes are imported into this country at a very great expence, and so, I suppose, after they are let loose in our woods, these things are set to destroy them, and get quit of them again."

The prevarication of these three last witnesses excited the indignation of the Bench. It appeared clearly, that Sir W. C. knew of the dog-spears being set in his woods; and Mr. Townsend proved that four dogs, belonging to different gentlemen upon visits at his house, had within these few years been killed by them. The defendant called no witnesses.

Mr. Justice Dallas reprehended severely, in his charge to the jury, a practice so imminently dangerous and unfeeling, particularly as it appeared that women and children frequently passed that way. He said he had little doubt as to the illegality of the act in his own mind; but, as it was a new case, as well as a very important one, and as he was a very young judge, he did not wish to lay down the law upon it without the concurrence of the other judges, subject to whose decision a verdict was given to the plaintiff for fifteen pounds, the supposed value of the dog.

The following action against the owner of a savage dog, was decided in the court of King's Bench, June 2, 1813:—

Finch *v.* Duval.

This action was brought to recover damages for injury sustained by the plaintiff, who had been severely bitten by the defend-

ant' s dog; an animal, which, to use the words of the pleadings, "was in the habit of biting and worrying all mankind."

The defendant was a market-gardener, residing at Camberwell, Surry; the plaintiff was a baker, dwelling at the same place. On the 24th of September, the plaintiff was proceeding through Loughborough-house-lane, when he met the two sons of the defendant, accompanied by the obnoxious dog, an animal of great strength, between the lurcher and the bull-dog breed. Some altercation took place between the parties, and a gun which the plaintiff had in his hand was wrenched from him. The dog immediately flew at him, seized him by the cheek, and threw him to the ground. In that situation he repeatedly bit him. With much difficulty he got away from the animal, but his respite from violence was of very short duration. The dog again seized him, threw him into a ditch, and wounded him in various places; the sons of the plaintiff having refused, for a considerable time, to call him off. The plaintiff, it appeared, had received no less than eighteen bites, and was confined to his bed in consequence for several weeks.

The surgeon who attended the plaintiff proved the injury he had sustained. He was for a considerable time in a very perilous state.

Brome, a publican; Haynes, a constable; and a boy of the name of Appleton, proved the vicious disposition of the animal. The witnesses deposed to their having been seriously injured by the dog, at different periods, within the last two years. Brome and Appleton were confined for several months in consequence. Haynes applied to Mr. Bewles, the magistrate, who desired the defendant to prevent his dog from going at large, but of this caution he had taken no notice.

The attorney-general, for the defendant, called a number of witnesses, who gave the dog an excellent character for mildness and forbearance towards the honest and inoffensive, and for great discriminative sagacity in attacking thieves. All these witnesses, however, on their cross-examination, admitted that they had heard of the injuries sustained by the persons called on the part of the plaintiff; injuries which they had received from the dog, when peaceably walking on the king's high-way.

Lord Ellenborough summed up the evidence, and the jury returned a verdict for the plaintiff, damages one hundred pounds

The following trespass for shooting a dog was decided in the court of King's Bench, Trinity Term, 1816.

MEEDFORD *v.* DU RIEU.

The defendant pleaded not guilty; and, secondly, a justification; that the dog was of such a ferocious disposition, as rendered him dangerous to the neighbourhood, that previous to the shooting in question, the dog had worried a child of the defendant's, and had sprung upon him in such a manner as to compel him to fire to defend himself. Upon these pleas issue was joined.

Evidence was given in support of the defendant's pleas, but the jury found a verdict for the plaintiff, damages fifteen pounds.

By this decision, it is quite clear that the killing of a ferocious animal can be justified, if it be for the prevention, but not for the subsequent punishment of a personal injury.

Although a man may destroy a ferocious animal in self-defence, he cannot be allowed to prosecute his revenge for a previous injury.

The following remarkable case, relative to the identity of a dog, came on in the Court of King's Bench, December 4, 1813.

RANDALL *v.* AMBLER.

This was an action to recover possession of a valuable Newfoundland dog. The case was one of considerable interest, and from its singularity, and the nature of the testimony adduced, occupied the attention of the court nearly four hours. The circumstances were as follow :—

About four years back defendant, who lives in Newgate-market, lost a very fine dog, of the Newfoundland species. He used every means in his power at that period to recover the dog, but without effect, and abandoned all thought of recovering him. About six months back, however, as he and his servant were walking near Ball's Pond, the servant directed his attention to a dog, which he perceived following two men at a short distance, observing, "I am sure that's your dog *Carlo*. Defendant was struck with the appearance of the animal, and declared himself to be of the same opinion. His man then called "*Carlo*," and the dog turned round, as if recognizing an old friend. The men who walked before him, however, called "*Lion*," and the animal, obedient to their voice, proceeded to them. Defendant and his man then approached, and, on closer inspection, became firmly persuaded that their first suspicion was well founded, and, after some altercation, took possession of the dog, and conveyed him home to Newgate-market, where he was welcomed by all the inhabitants of the place, as an old friend and acquaintance. For the recovery of this dog it was that the present action was brought by plaintiff, to whom he belonged at the time he was seized at Ball's Pond.

On the part of the plaintiff, several witnesses were called, who gave the following account of the "birth, parentage, and education," of the animal. About six years back, a person named Wagginton, residing near Moorfields, was in possession of a fine Newfoundland dog. By his permission this dog was introduced to a bitch of the same species, in the possession of a person named Monk.

In consequence of this, a litter of puppies were produced, and Wagginton was allowed to choose one. When they had arrived at a proper age he made choice of the handsomest, which was the dog now in dispute. He was transferred by Mr. Wagginton to a person named Hollyhawk, with whom he remained for some years. While in the possession of Hollyhawk, in the course of his antics he unfortunately ran near a carpenter's bench, and a sharp edge-tool having fallen upon him, inflicted a severe wound on the inside of his right leg, in consequence of which apprehensions were entertained that he would have been lame for life. This wound, however, healed, and was attended with no other effect save leaving a large and perceptible scar on the spot where it had been inflicted. At a subsequent period, Hollyhawk becoming embarrassed in his circumstances, the dog was handed over to a Mr. Wiggett, in whose possession he remained, until a farrier having heard that Mr. Randall, of Ball's Pond, wanted such a dog, applied to Mr.

Wiggett, to know if he would sell him. Mr. Wiggett answered in the affirmative, and agreed to dispose of him for six pounds. The farrier, in consequence, accompanied by another man, conveyed the dog to Mr. Randall, who paid the stipulated sum, and had kept the dog in his possession from that time until it was claimed and seized by defendant.

On the part of the defendant it was proved, that he had obtained possession of a puppy of the Newfoundland species, which grew up in Newgate-market, and was remarked by all the inhabitants in that neighbourhood, not alone for his beauty, but for the singularity of his acquirements. He was remarkably fond of the water, and the nephew and son of defendant frequently conducted him to the fields in the neighbourhood of London, to wash him in ponds and other waters. In the course of these excursions, it happened that he approached a mower that was at work in a meadow, and who, with his scythe, accidentally inflicted a severe wound on the inside of his right leg, which at first exhibited very dangerous symptoms, but was finally cured, leaving a visible scar behind. At a subsequent period, the animal, which was extremely courageous, fought with a bull-dog in Newgate-market, and while engaged, the master of his antagonist took him by the tail, and broke one of the joints thereof, for the purpose of parting them: this cruel operation had the desired effect, and the dog let go his hold, but his tail became much disfigured, and hung in a crooked form. The son of the defendant perceiving this, foreseeing that if it remained in that state, the beauty of the animal would be considerably diminished, immediately procured four *splinths*, or splinters, and putting the tail in its proper form, supported it with these splinths, and placing a bandage around it, he let it remain until it became completely knitted. The bandage was then removed; and, on feeling the tail, a knot, or enlargement of the bone, where the fracture had been, was perceptible. Among other acquirements which attracted the particular notice of the witnesses to the dog, were the circumstance of his carrying a basket in his mouth, receiving a penny from his master, and going to a tripe-shop to purchase food; archly running away with bunches of greens, &c. The external marks on his body were also singular, he had a white spot, surrounded with black, on the back of his neck, and a black mark extending lower down his nose on one side than the other. To these were added, a black mark in the hollow of his groin, and a black saddle mark on his back, all of which were recognized by the witnesses; every one of whom swore, in the most positive and unequivocal manner, that it was the dog of which defendant was possessed, and which he had lost about four years back.

The jury, after a short absence, returned with a verdict for plaintiff.

FINIS.

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